FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 243. (No. 34, Vol. V.)] AUGUST 23, 1913. [Registered at the G.P.O. as a Newspaper.] [Weekly, Price 3d. Post Free, 3½d.

Flight.

Editorial Office: 44, ST. MARTIN'S LANE, LONDON, W.C.

Telegrams: Truditur, Westrand, London. Telephone: Gerrard 1828.

Annual Subscription Rates, Post Free.

United Kingdom ... 15s. od. Abroad ... ... 20s. od.

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EDITORIAL COMMENT.

British Engines in the *Daily Mail* Contest.

Although at the moment of writing the *Daily Mail* £5,000 prize, which the *Daily Mail* continues to explain with vigour was offered for the encouragement of the British engine, is still temporarily in the coffers of the *Daily Mail*, we are none the less satisfied that it is just and proper to pay a tribute to the makers of the Green engine with which the only start up to date has been accomplished.

Those in the thick of the movement know how perseveringly Mr. May and Mr. Green have struggled in their enterprise, and anyone outside the immediate circle of flight enthusiasts who has any knowledge whatever of engineering should be able to appreciate that their task has been far from an easy one from every point of view.

It is true that what we need most in this country is a British-built engine, but it is equally true that the financial support necessary to develop such a motor rapidly to a point of success has not been forthcoming. Nevertheless, the Green Engine Co. have worked manfully on, have kept abreast of the requirements of the time, and, to their everlasting credit, still remain in the field, and alone at that when the start for the *Daily Mail* Race took place.

The engine on Hawker's Sopwith biplane has been running in first-class trim ever since the machine was ready to take the air. It carried him safely from Southampton to Yarmouth, and it is still fit and ready to carry the same machine all round the coast. That the engine on Mr. McClean's Short biplane has not been developing its full power is a matter of regret to all concerned, but the engine that is unable to find its last fifty revolutions is by no means singularly British. We have recollections of a certain competitor in the Military Aeroplane Trials, who tried every day for a week to coax the last fifty revolutions out of a Gnome. The temporary failure of this individual engine to come up to expectations, therefore, is of no real consequence at all.

It is as well that those who are interested in this event should recognise the situation respecting the engines in the first instance, for whether the prize is won or not will make very little difference to that. Moreover, the event presents such exceptional difficulties from other points of view entirely, that we should deem it altogether unfair to wait until the limit time for completing the circuit before saying a word in praise of the British engine, which it is the *Daily Mail's* outspoken object to encourage. We only hope that the Fates may be kind enough to the competitors to cause the encouragement to be of a substantial form. But, failing this—and assuming that the prize will hold good for another year—there is little doubt that, with the extra time thus afforded, there will be no lack of British engines to enter the lists. In fact, the prophecy of Mr. Horace Short—that, before long, Great Britain will lead the world in the design and manufacture of aerial motors—is not, to our mind, the least bit too optimistic. This we say in no spirit of ignorant boastfulness. We speak rather out of the knowledge of what is going on behind the scenes, but of which it would be highly improper of us to say anything at all prematurely.

The Spirit of Sportsmanship.

Although the building of aircraft and the winning of large money prizes with their aid is as much a commercial matter as the selling of butter, it is pleasing to regard the spirit of true sportsmanship which animates those who are engaged in the development of the aerial

industry. Of that excellent spirit we have had outstanding illustrations during the past week in connection with the *Daily Mail* Race. First, there was the matter of Mr. Hawker's illness and the voluntary surrender of Messrs. Short of their call on the services of Mr. Pickles in order that the latter might continue the flight so auspiciously begun by the original pilot of the Sopwith machine. Not only did they relinquish their lien on Mr. Pickles' services, but Mr. Short and Mr. McClean actually went to considerable trouble to see that their own pilot got down to Yarmouth to continue the flight on the rival machine. Looked at from the sordid standpoint of mere commercialism, the failure of Mr. Hawker was a good thing for the others, since it gave them an excellent chance of getting things right and making their own start on something like level terms. But, rather than accept the advantage which the luck of the game had placed in their hands, they actually took all the trouble possible to negative it, and to give the advantage to their competitor. Doubtless the cynical person will say that it may be magnificent, but that it is not war. That may be true, but we prefer the magnificent in this case.

Then, as is well known, Messrs. Short Bros. have had considerable difficulty in getting their Green engine to develop its full power. So great, indeed, that at the moment of writing it is not even certain that Mr. McClean will be able to make a start during the present week. Here the fates were playing into Mr. Sopwith's hands, and anyone with less of the feelings of the true sportsman would have been content to look on with grim amusement at the difficulties of his rivals. Not so in this case, however, for Mr. Sopwith at once came to the rescue with the offer of assistance in the shape of the special radiator which he had found to act best in conjunction with this type of motor. There is no need to utter platitudes in connection with these most pleasing incidents of the great race—the records are quite eloquent enough in themselves.

The Use of "The String."

We fear that some of our readers occasionally fail to pay very much attention to the details of what they read, because often we have letters that raise points directly answered in the articles to which they relate.

Our article on the "Use of the String" is a case in point. We have had several letters from correspondents merely drawing attention to the possible adverse influence of the propeller draught. One correspondent in particular explains to us at some length the fact that a propeller draught exists when the machine is in flight.

Now in the article itself we endeavoured to make it very clear that we dealt with this question of the use of a string on a tractor machine, and pointed out that Lieut. Briggs had informed us that his experiments with the string on a tractor had been very satisfactory.

On the strength of that evidence we suggested that other pilots should investigate the matter for themselves. We, like the correspondents who have written to us, supposed that the propeller draught might vitiate the utility of the string on a tractor machine. It was solely for this reason that we delayed so long in writing about a subject that has always been very much to the fore in our mind, and we said so.

It is also a matter for consideration that if the slip stream of a propeller is in the order of 20 per cent., the draught will only be 14 miles an hour greater than the relative wind over the rest of the machine when the machine is flying at 70 miles an hour. It is the veering of the 70-mile-an-hour relative wind that is the important matter, and it is, after all, quite reasonable to suppose that the string would be sensitive to its influence notwithstanding the locally higher air-stream in which the string itself is flying.

COMPTON C. PATERSON.

PILOT-CONSTRUCTOR.

MR. COMPTON PATERSON, who has just founded a flying school for the instruction of officers and others at Kimberley, in South Africa, and whose portrait we publish this week, initiated himself into the mysteries of aviation in the early part of 1910. In that year he designed and constructed a biplane, somewhat on Curtiss lines, which he proceeded to test on the seashore at Freshfield, near Liverpool. Moreover, he was successful to the extent of flying straights of about half a mile after a very short practice, and rapidly became a proficient pilot of the machine, although he did not secure his certificate until December, 1910, mainly owing to the difficulty of having the qualifying flights witnessed by an official observer. The aerodrome at Freshfield was established by Compton Paterson, who afterwards came to London, and put in some time with the Grahame-White Aviation Co. at Hendon, before making arrangements for a South African tour. It was in December, 1911, that he landed at Cape Town with one of his own biplanes fitted with a 50 h.p. Gnome. Flying demonstrations were given at Kenilworth race course, near Cape Town, and subsequently at the Green Point cycle track. These exhibitions extended through the Christmas holidays of that year. Among his experiences was a mishap which might have had very serious consequences, the fabric on the tail of his machine bursting at an altitude of something like 40 ft. The machine did not immediately fall, but first climbed at an ever-increasing angle for another 20 ft., when it turned over and crashed to the ground upside down. The pilot escaped without serious injury, and in a few weeks was at work repairing the wreck.

From Cape Town, Paterson went to Johannesburg, where he flew during February and March of 1911, and Kimberley was visited in April. So successful was the general effect of his work, that the Cape Town Corporation decided to ask him to give a hydro-aeroplane demonstration, for which purpose Paterson had to design and have suitable floats made locally. As a result of this tour, the people of South Africa have been fairly well stirred up to a realisation of the possibilities of the aeroplane, and Paterson himself has succeeded in establishing the nucleus of an industrial interest in the furtherance of the movement.

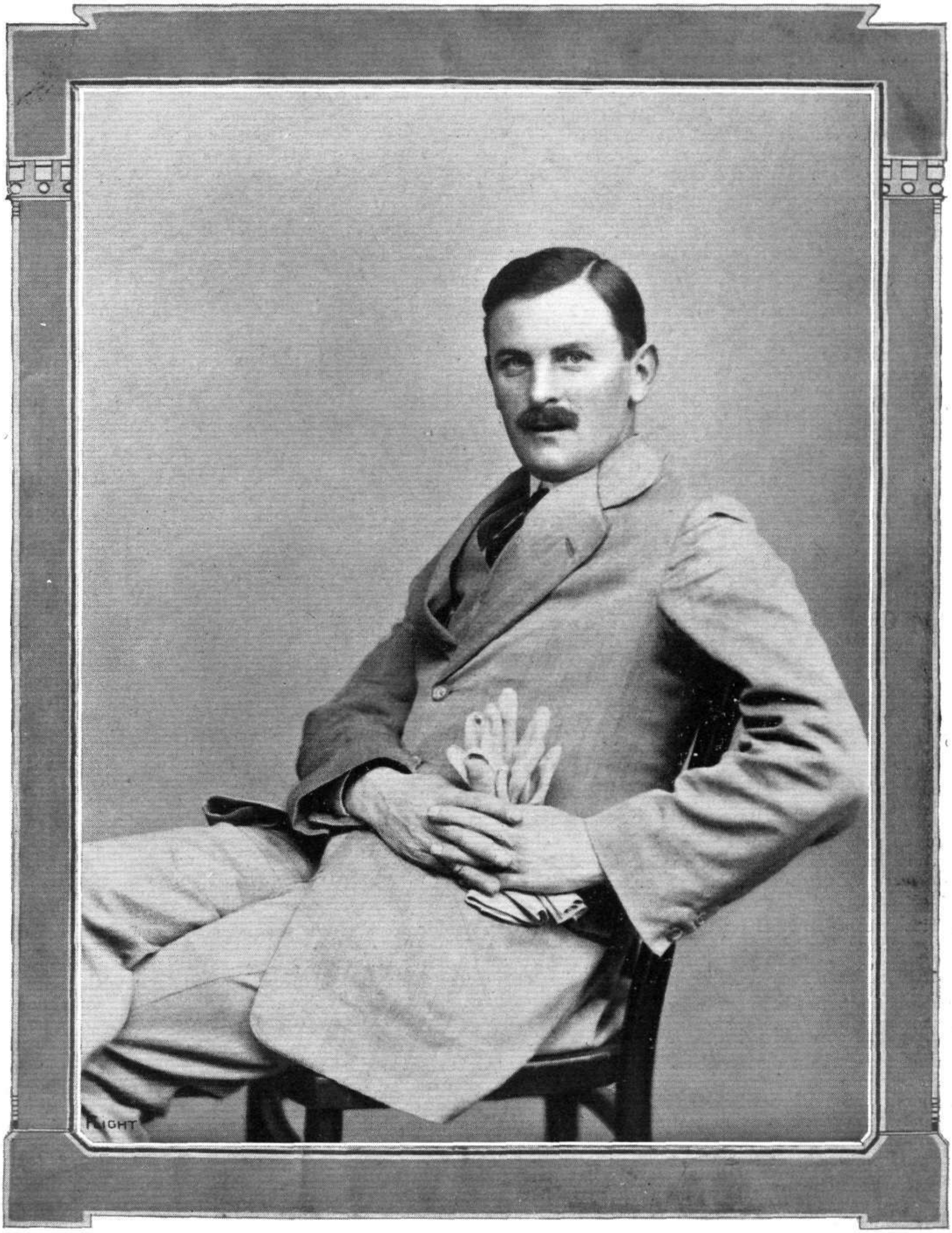
"THE HAWK."

An I.C.S. "Entente Cordiale" Race.

IF any encouragement were needed for the flying of aeroplanes between the British and French capitals it would surely be provided by a prize of £700, which has been deposited with the Royal Aero Club by the International Correspondence Schools, to be awarded in a race from Paris to London on September 13th next, open to British and French pilots only. It is proposed that the race should finish at Hendon. Actual conditions and details are now being considered by the Royal Aero Club, but pilots wishing to enter may send in their names at once to the Club.

MEN OF MOMENT IN THE WORLD OF FLIGHT.

Pilot-Constructor.



MR. COMPTON C. PATERSON.

THE "DAILY MAIL" ROUND BRITAIN RACE.

"Enchantress,"
Royal Motor Yacht Club,
Off Netley. Friday afternoon.

THE days when the "Enchantress" was the centre of much competitive activity on Southampton Water in connection with the various motor boat trials that were held there have passed long since, but the floating Club House of the Royal Motor Yacht Club remains as the headquarters of that department of sport, and it is appropriate and courteous that they should have offered the hospitality of the ship in that capacity to the Royal Aero Club on the occasion of the start for the *Daily Mail* flying race.

With an event timed to start at six o'clock in the morning, it is a matter of convenience that one much appreciates to be on the spot over night, particularly when, as in this instance, the accommodation is of such a thoroughly comfortable order. Having arrived at midday, I found the officials had gone over to Ryde, in order to mark, for the purposes of identification, the various portions of the Sopwith hydro-biplane that is to be flown on the morrow by Mr. H. G. Hawker. This matter accomplished, they returned to the "Enchantress" with the news that no attempt at a start would be made before ten o'clock, owing to the fact that the site of the aeroplane shed in which the machine was housed was such as to make it inconvenient to float the craft before high tide. As a result, there entered into the scheme of things material the more alluring prospect of a reasonably long time in bed.

Saturday morning.

Hopes in this direction proved false, for at five o'clock visitors began to arrive at the gangway outside my cabin window, and I heard voices enquiring diligently for Mr. Perrin, the Secretary of the Royal Aero Club, while various local pressmen ventured a general request for information "about this flying business." After an hour of this sort of thing, I came to the conclusion that it was hopeless to pretend to rest, and the same thought must have struck others, for quite a number of those on board turned up to breakfast about half past six. Among the early visitors were the Mayor and Sheriff of Southampton, who had come down on the Harbour Board tug, a message over night warning them of the delayed start having miscarried.

THE ROUND BRITAIN WATERPLANE RACE.—Mr. Hawker starting on the Sopwith machine on Saturday morning, August 16th, from Southampton Water.

Time dragged somewhat to the appointed hour, but the arrival of Lieut. Spencer Grey, R.N., on the Sopwith bat-boat, and the later arrival of Lieut. Travers, R.N., on a Borel hydro-monoplane, helped to relieve the situation. The attempt of the latter to get his machine hitched up to a boom alongside the "Enchantress" afforded an interesting demonstration of an important problem in connection with the use of seaplanes. Ultimately, the machine was made fast to a buoy nearer shore.

Ten o'clock arrived, and there was no sign of Hawker. Eleven o'clock struck, and still the expected machine had not put in an appearance. About half-past eleven, however, he was seen flying up the Channel, and in another minute or two he had alighted about half-way between the ship and the shore. Several boats put off to meet

him, but most people remained aboard on the understanding that the official start would be timed as the machine passed in full flight near the ship. This was not in the regulations, but merely an idea that some people more or less adopted.

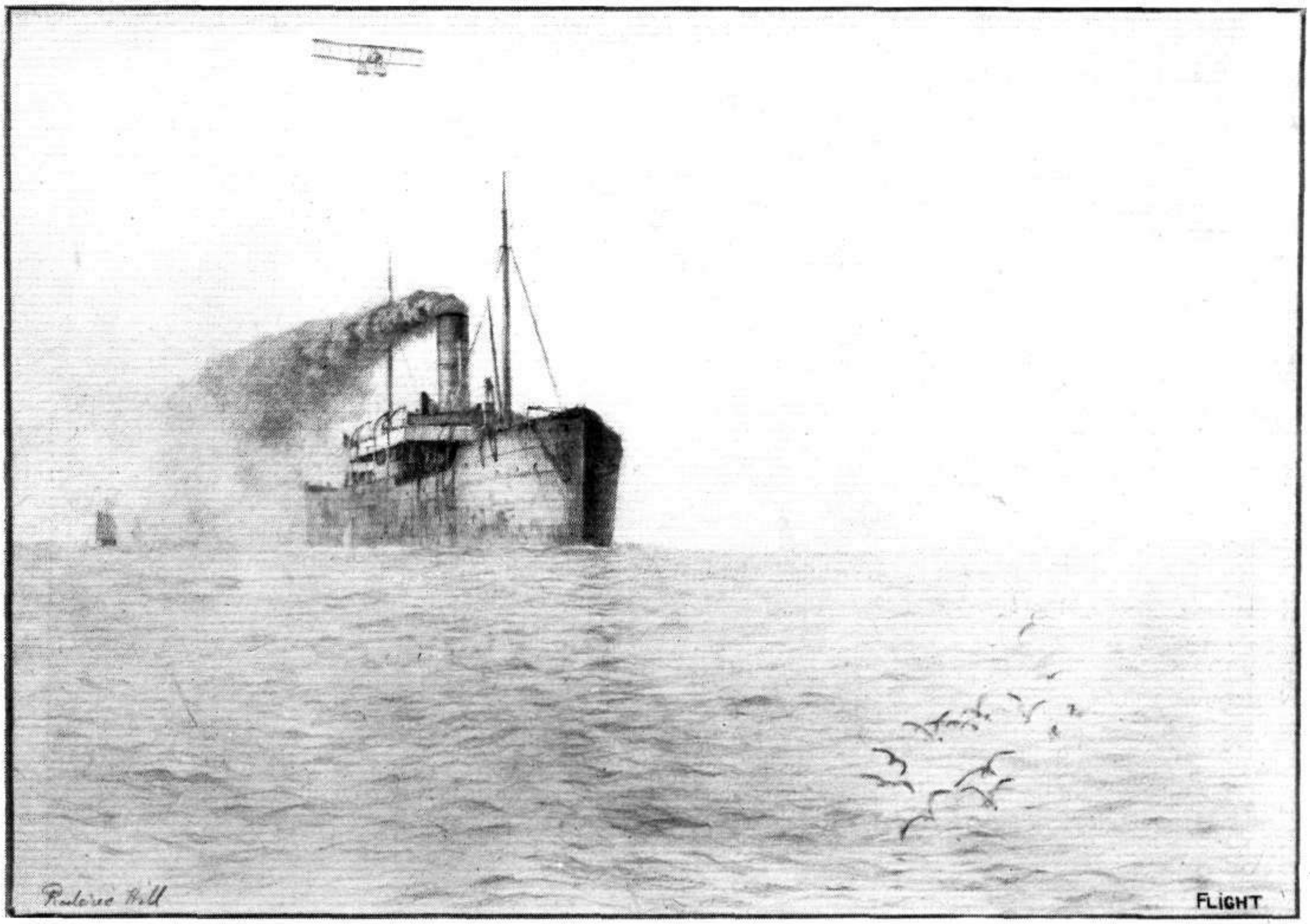
In the meantime, we watched the little group of boats from a distance, and presently saw them clear away from the machine. The engine was started, and at 11·47 the hydro-aeroplane sped along the water in the direction of the open sea. He was off. Without fuss and without an audible cheer, Hawker had started in the great trial. In a few seconds he and his machine were in the air, and almost before anyone had realised that the flight had begun, the machine itself was out of sight and the show was over.

Then followed the usual buzz of conversation, which was naturally mainly directed to the prospect of the pilot's successful accomplishment of his journey. He had 144 miles to fly in order to reach the first control at Ramsgate. This was followed by another 96-mile flight to Yarmouth. Then a journey of 150 miles to Scarborough. It was generally recognised that to have any chance of success he must get to Scarborough on the first day, although the total for the day's journey represented nearly 300 miles.

Sunday was to be a day on which flying was prohibited, but competitors were at liberty to repair their machines. It was evident, therefore, that the best policy would be to make the longest journey possible on Saturday, in order that the maximum work might be done before the arbitrary repairing time came into force.

From this point of view it was, therefore, unfortunate that the start had been made so late, and it appeared that the additional delay was due to difficulty in getting the compass properly arranged.

If the pilot made Scarborough on the Saturday night, he ought to fly as far as Oban on the Monday, the total distance for the second stage being 446 miles, including the Caledonian Canal, which is recognised as being probably one of the worst stretches in the circuit. On the Tuesday he would have to get from Oban to Dublin, which is a journey of 222 miles, and from Dublin to Falmouth, which is a further 280 miles, the day's journey being 500 miles. The importance of reaching Falmouth on the third night is in order to avoid a very long journey on the last day. To complete the circuit in time, Hawker would have to cross the finishing line at Southampton before 4 o'clock on Wednesday afternoon, and it would obviously be taking great chances to try and complete the whole distance from Dublin on the morning and early afternoon of that day.



"SIX KNOTS AND SIXTY."—Mr. Hawker, on the Sopwith waterplane, shortly after leaving Southampton on Saturday morning, August 16th, in the *Daily Mail* Round Britain Race, passing over a tramp.—From a drawing by Roderic Hill.

Reckoning the circuit out in this manner, shows how difficult is the task which has been set for the *Daily Mail* prize, and the mere fact of the start having taken place so successfully is, at any rate, a credit to the British-built Green engine and the British-built Sopwith biplane. It is a matter for regret that other machines were not present to take part also. Mr. McClean,

who was to have started, was apparently in difficulties on the Isle of Grain, and those on board the "Enchantress" heard no further news of him.

"OISEAU GRIS."

Details of the Flying.

As has already been stated, it was at thirteen minutes to twelve on Saturday morning when Mr. Hawker, on the Sopwith machine, rose from Southampton Water. Speeding down the reach, the machine rapidly faded from sight past Calshot, and then passing over the Solent, Mr. Hawker made for the open sea. Keeping well out from the land, at a fairly constant altitude of about 1,000 ft., Brighton, Eastbourne, and Dover were each passed in good time, and then the light southerly wind added its quota of assistance to the 100 h.p. Green engine, which has done its work throughout in such splendid style. Ramsgate, the first control, was reached at 2.11, the 144 miles of the first stage having been traversed in as many minutes. *En route* Mr. Hawker received an aerial welcome, Mr. Salmet, who was giving exhibition flights at Margate on his Blériot, meeting him, and flying with him for a short distance. In the actual control, the Mayor of Ramsgate (Alderman Glynn), welcomed, per megaphone, Mr. Hawker, and announced that he had won the cup offered by the town for the first competitor to reach there. The Aero Club officials quickly made their inspection of the machine, and handed Mr. Hawker a clean way-bill, so that as soon as the formalities, &c., had been completed, at two minutes past three the engine was started and the machine was away on the next stage to Yarmouth. The story of this part of the journey was but a repetition of what had occurred during the first stage, except for the fact that when crossing the mouth of the Thames there was a slight mist which obscured both banks. Still, Mr. Hawker was able to rely on his compass, and at Walton-on-the-Naze and at Clacton the crowds which assembled saw the machine in the distance going as well as ever.

On arrival at Yarmouth at 4.38 p.m., Mr. Hawker had another enthusiastic welcome. He said he was feeling well, but soon after he got ashore he collapsed, and the doctors diagnosed the case as one of sunstroke. This was borne out by Mr. Kaufer, his passenger, who said they had found the sun very trying, and unfortunately Mr. Hawker had not taken the precaution to use goggles. Any further progress was impossible, and Mr. Sopwith at once set about arranging for a relief pilot. Eventually Mr. Sydney Pickles, who, like both Mr. Hawker and Mr. Kaufer, comes from Australia, undertook, with the generous consent of Messrs. Short Bros., to take the Sopwith on from Yarmouth. During Sunday, which was a rest day, Mr. Pickles familiarised himself with the details of the machine, and on Monday morning was quite ready to continue the flight. The weather was, however, against the plucky pilot, and although he made a determined effort to get away at 5.30 a.m., the rough sea and rising wind baulked him, and there was nothing left for it but to return to the shore, which, perhaps, was just as well, as up Scarborough way the "white horses" were so pronounced as to have washed away the buoys marking the control. The machine was presently dismantled and returned by rail to Cowes ready for a second attempt.

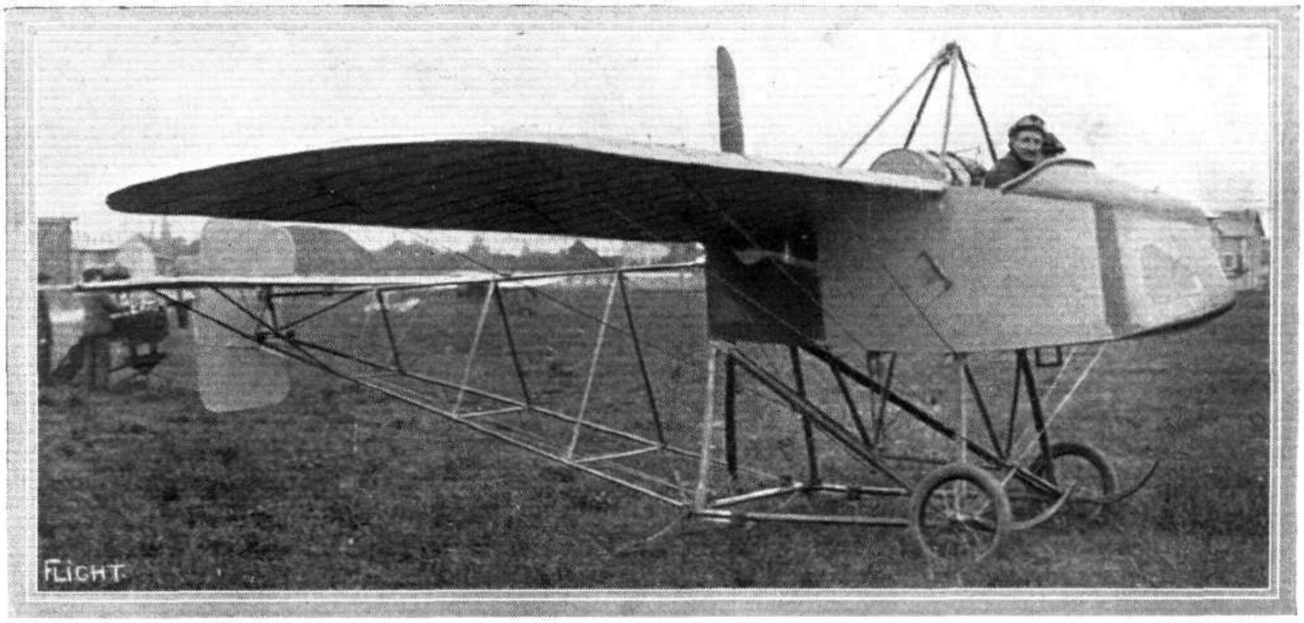
In the meantime, Mr. Frank McClean and Messrs. Short Bros. had been working away with solid perseverance to remedy the obstinacy of the engine, the fault being ultimately found to lie in a cracked cylinder. It was no sooner located than its replacement was arranged for by co-operation with Mr. Fred May, of the Green Engine Co. Its testing, until Mr. May was satisfied with its running, was then started, and at 2 a.m. on Thursday the engine was taken over to Grain Island, where the Short machine was comfortably resting, to be installed. All being well by Thursday evening, Mr. McClean hoped to make for Southampton by way of the air, and there was the possibility of his making a start during Friday for the race itself.

As to Mr. Hawker, his health all the time was mending, so that on Thursday it was hoped he would be able to make his second attempt to-day (Saturday morning), early. Failing this, Mr. Sydney Pickles will be in readiness to take the pilot's seat, and endeavour to prove the sterling English worth of both the Sopwith machine and the Green engine. And may good luck come to either one of the plucky trio who are thus upholding the prestige of the home aeroplane industry.

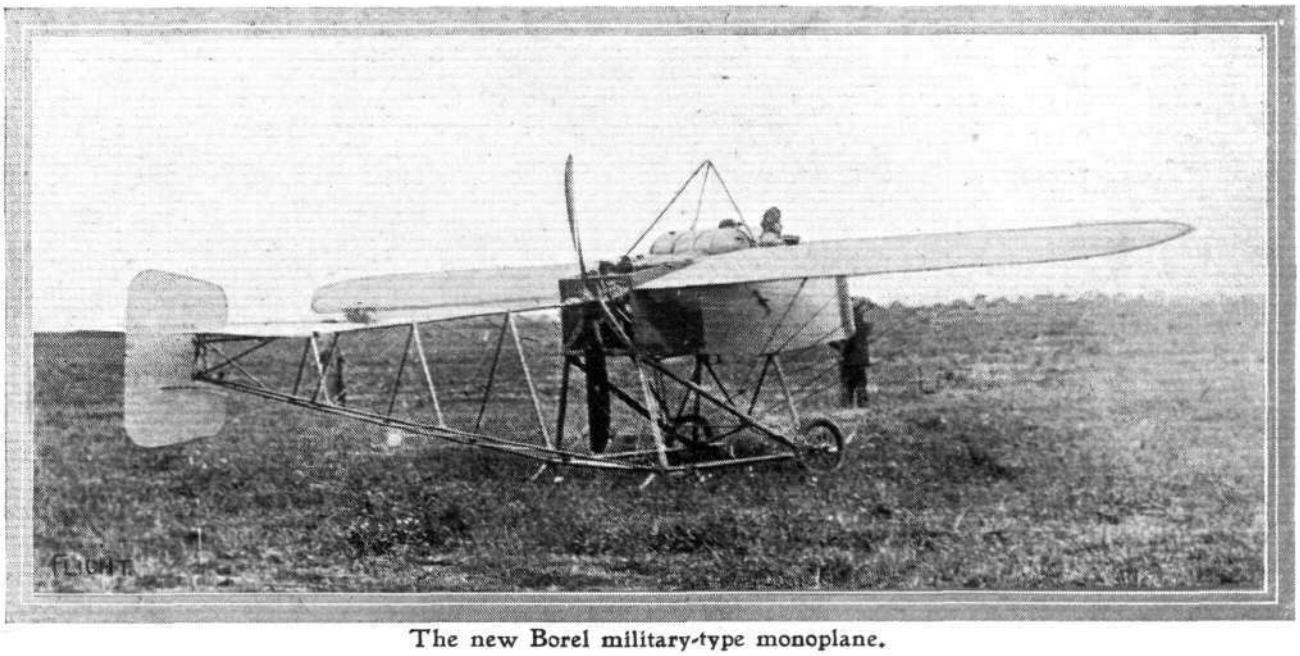
THE ROUND BRITAIN WATERPLANE RACE.—Group of officials, &c., on board the Royal Motor Yacht Club headquarters, the "Enchantress," for the start. Reading from left to right: (seated) Mr. T. Marlowe, Mr. Armstrong, Sir Thomas Lipton, the Mayor of Southampton, the Sheriff of Southampton; (standing) Major Lindsay Lloyd, Mr. Hamilton Fyfe, Mr. Harold E. Perrin (Sec., R.Ae.C.), Colonel Holden, C.B., &c., Commander Cummings, Capt. Robinson, Major Stephens (Sec., R.M.Y.C.).

THE BOREL MILITARY MONOPLANE.

As the new 80 h.p. Borel monoplane has been specially designed to comply with the requirements of the military authorities, the first consideration has naturally been given to the provision of such qualities as are desirable, not to say essential, in a military machine. As these qualities include speed, weight-carrying power, stability, wide range of vision, facilities for bomb dropping, and the installation of quick-firing guns, as well as a wireless telegraph apparatus, it will be easily understood that numerous difficulties—aero-dynamic and constructional—have to be overcome in order to produce a machine embodying all of these features, and all credit is due to the Borel firm for their bold attempt to solve the problem.



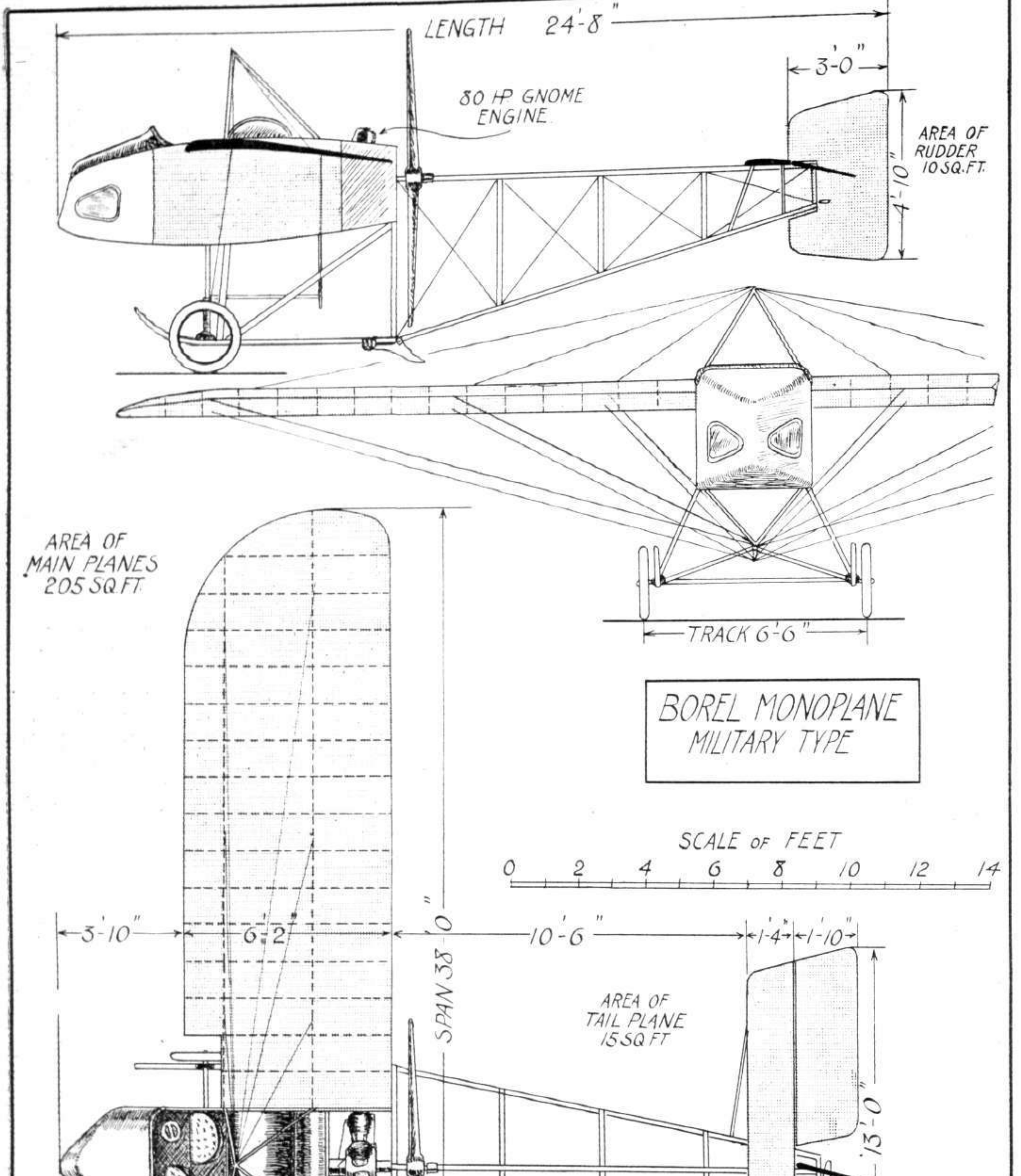
View from in front of the new Borel.



The new Borel military-type monoplane.

From a glance at the accompanying illustrations it is at once apparent that the most noticeable departure from usual Borel practice lies in the positions of the pilot and the propeller. Whereas all previous Borel monoplanes have been of the tractor type, it will be seen that in this machine the propeller is placed behind the main planes, whilst the pilot's and passenger's seats are situated well out in front of the wings. Needless to say this position provides an excellent view in all directions for the pilot, while the passenger is also so situated that he is able to survey practically all that lies beneath the machine.

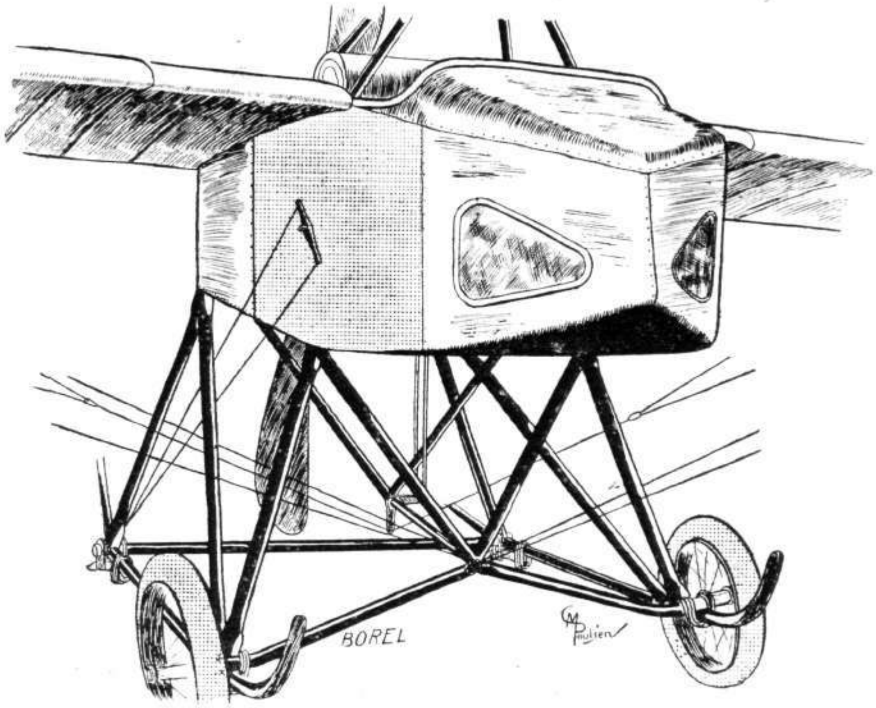
In the construction of the *nacelle*, which is of rectangular section, provision has been made for the mounting of a quick-firing gun, which will be worked by the passenger, whose seat, it will be observed, is placed slightly in front of the pilot's seat, thus giving both more room to enable them to operate gun and controls, respectively, without interfering with each other. The nose of the *nacelle* has been so designed that in flight it will deflect the air upwards over the heads of the occupants, who will fully appreciate this little attention to their comfort. In the rear end of the *nacelle* is the 80 h.p. Gnome engine supported between two pressed-steel frames, the



THE BOREL MILITARY TYPE MONOPLANE.—Plan, side and front elevation to scale.

front one of which serves at the same time as a support for the rear-wing spar and the rear members of the top pylon. The rear engine frame carries a ball-bearing, in which runs the propeller-shaft, or, more correctly speaking, the extension of the crank case on which the propeller is mounted.

In a monoplane of the engine-behind type, one of the constructional difficulties is that of suitably mounting the tail planes on an outrigger which will withstand torsional strains and at the same time allow of the propeller clearing all its members. In the Borel military monoplane this difficulty has been overcome by constructing the outrigger of three instead of four booms. These are in reality steel tubes, the upper one of which abuts against the boss of the propeller through the interposition of a ball-bearing. The two lower members are secured to the rear end of the chassis skids. One of our sketches shows the method of joining the struts to the tail booms, and it will be noticed that the joint is effected without piercing either boom or strut, and thereby weakening them. Another sketch shows the chassis, which impresses one as being particularly strong without affording an undue amount of head resistance. On the rear ends of the main skids will be noticed two small tusk-like extensions which are sprung in order to lessen shocks due to the tail dropping and which perform really the duties of a tail skid in the absence of a special fitting of that nature.



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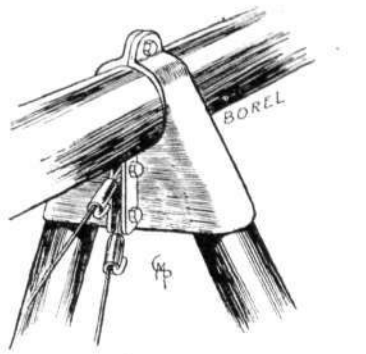
The *nacelle* and the landing chassis of the new Borel.

An interesting point in connection with the control of the machine is that the rudder and elevator cables are carried inside the two lower tubular tail booms, so that should any one of them break there is no danger of them becoming entangled in the propeller.



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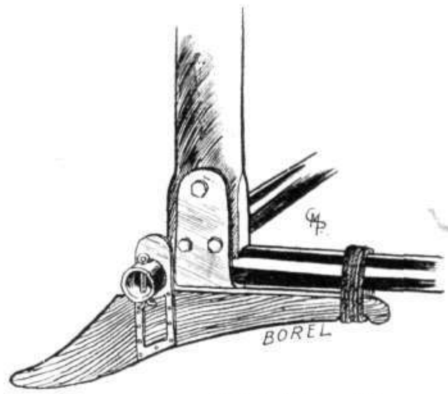
Sketch showing method of joining struts to tail boom of Borel without piercing either



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Small sprung rear skid on heel of Borel main skids.

It has already been said that a wireless telegraph apparatus is carried. This in itself can hardly be said to be a novelty, as already messages have been sent from aeroplanes in flight, but once the machines are on the ground their utility for transmission of wireless messages is greatly decreased owing to the lack of a mast on which to secure the *antennes*.

The Borel machine has been so designed that it can be made to form its own mast. By standing the machine on its nose, so that it rests on the skids and on the nose of the *fuselage*, the tail booms are inclined upwards. Another pair of tubes of smaller diameter, which during flight are enclosed in the lower tubular tail booms, now form extensions on which the *antennes* may be mounted. A small auxiliary motor is provided for the production of the necessary current.

When put through its preliminary trials by M. Daucourt the machine behaved excellently, getting off easily with a passenger and three hours' fuel.

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G. M. Dyott's Ill-Luck.

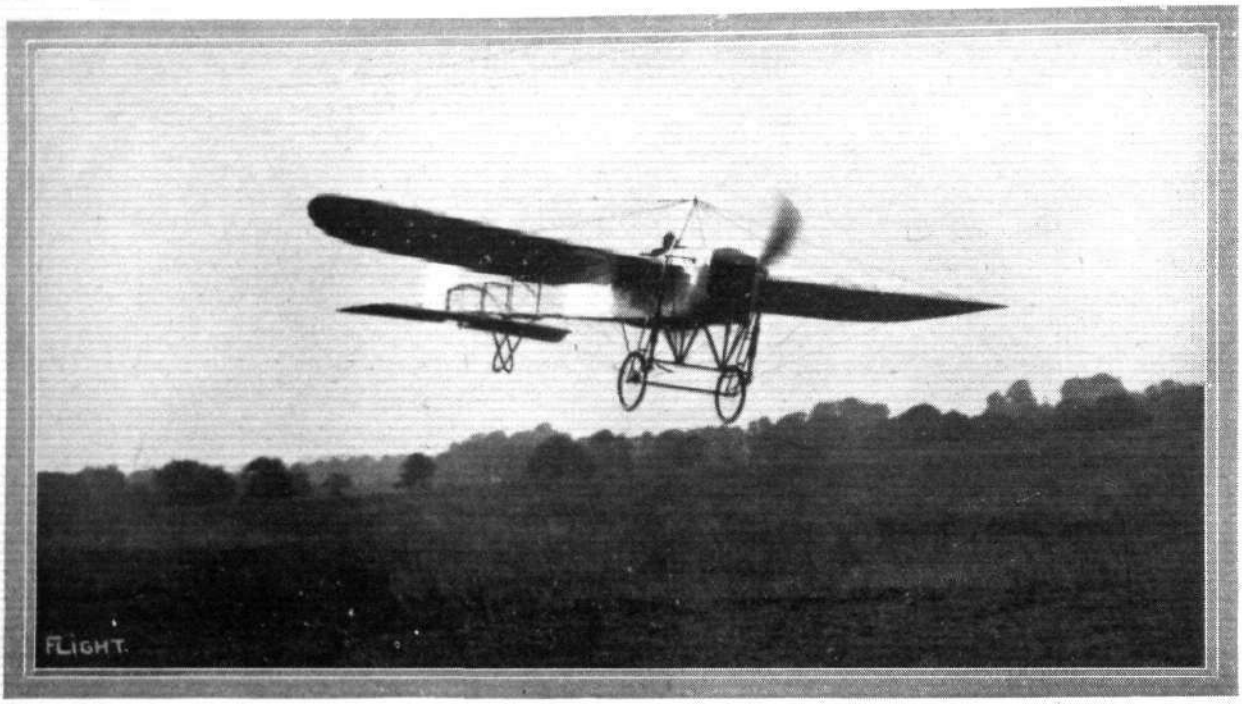
TEMPORARILY, the fates have refused to smile on G. M. Dyott, who has been doing such good work in America, but every man must expect a certain measure of misfortune, and Dyott himself is standing up manfully against his odds. On one occasion recently a terrific hurricane and a thunderstorm, which must have been almost as bad as its description in the American press, broke over the aviation ground where Dyott and several of his companions were sleeping in the tent that also covered the aeroplane.

The tent pole was shivered by lightning, and every man in the tent was momentarily stunned by the shock. The fall of one tent pole brought about the collapse of another, and the aeroplane was in imminent danger of being wrecked. Those who were less stunned than the others managed, however, to ward off a certain amount of the danger, and the fire brigade having been summoned on the misunderstanding that the whole place was ablaze, turned up at an opportune moment to render assistance.

On another occasion Dyott was returning from a flight, and about to land, when the entire crowd swept across his path, presumably under the influence of uncontrolled enthusiasm, but in any case with a total ignorance of the meaning of momentum in a moving mass. In a fraction of a second Dyott was confronted with the hideous prospect of mowing down the spectators by the score, the alternative being to elevate and fly straight at a telegraph pole. He took the latter chance, saved the crowd, wrecked his own machine, but being thrown clear himself was happily quite uninjured.

FLYING AT HENDON.

THE feature of last week-end meeting was that twenty pilots participated in the flying, including three skilled airmen from France, and **B. C. Hucks,** who made a welcome return to Hendon. Our friends from across the Channel were M. Perreyon, of height-record fame; **Gougenheim,** one of the chief pilots of the Farman School; and "M. Cardery," a new and promising pilot of the Morane-Saulnier monoplane, and not unknown to the British Peerage. overhauled and now presents a very smart appearance, having new fabric and streamline struts. It certainly seems to fly all the better for its overhaul; for instance, on Thursday of last week, Beatty took up three passengers—Capt. Tyrer, R. Slack- and G. Slack—to a height of over 200 ft. From 3 p.m. the pilots went up close upon each other's "tails," and performed all sorts of evolutions. E. Baumann made one of his usual high



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THE FINISH OF A FINE FLIGHT AT HENDON.—Mr. B. C. Hucks descending after his attempt to beat the British altitude record, when he reached 9,800 ft.

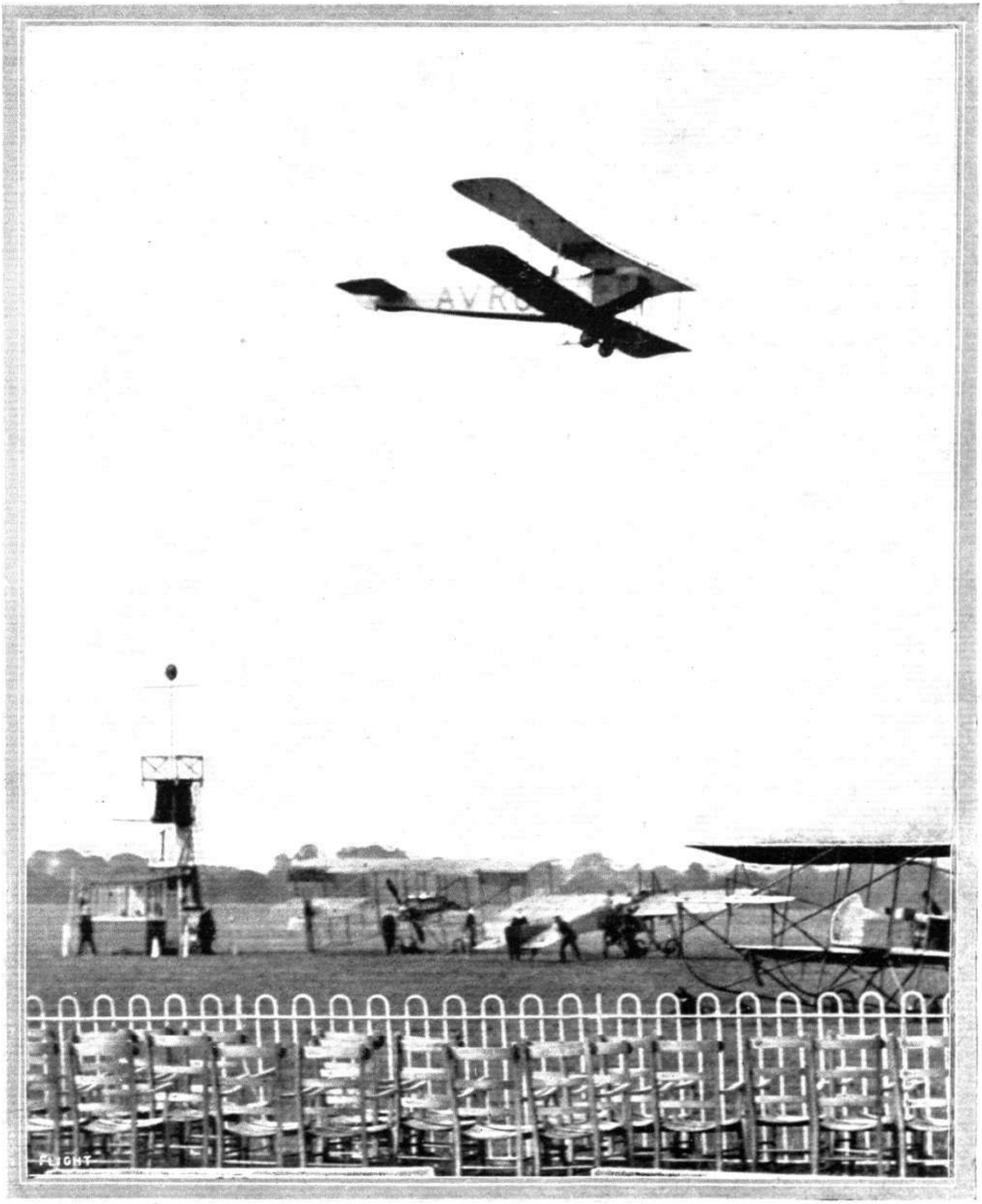
The proceedings opened on Saturday—an ideal day for flying—with a high flight by Marcus D. Manton, on the new Grahame-White biplane, which climbed rapidly to a height of over 2,000 ft. From this height Manton made a fine straight descent when over the Welsh Harp. He was followed by R. H. Carr, on one of the old G.-W. 'buses, and later on Louis Noel took up the G.-W. Maurice Farman. Richard T. Gates then took over the old G.-W. 'bus, and put up numerous circuits of the aerodrome, whilst Carr and Geo. W. Beatty ascended on the new G.-W. 'bus and the 50 h.p. Gyro-Wright respectively. The latter has been thoroughly flights on a *white* 35 h.p. Caudron, R. Slack put the Morane-Saulnier through its paces, P. Verrier and Noel made embryo "cart-wheels" on their respective Maurice Farmans, whilst Gougenheim brought out a new Henry Farman and executed the Chevillard *chute de côté*. Other exhibitions were given by Birchenough on the G.-W. 'bus, F. Goodden on a 35 h.p. Caudron, and W. L. Brock on the 75 h.p. Deperdussin. In the meanwhile, Hucks' Blériot was being erected, but it was not until later in the evening that it was ready.

Shortly after 4 o'clock the first heat of the speed handicap was

"Flight" Copyright.

The new Grahame-White School 'bus.

flown.--The course was over six laps of the aerodrome, and there were four starters, as follows:—Marcus D. Manton on the new G.-W. 'bus (4 mins. 41 secs.), Louis Noel on the G.-W.-Maurice Farman (2 mins. 2 secs.), N. Spratt on the 60 h.p. Deperdussin (1 min. 18 secs), and R. Slack on the Morane-Saulnier (scratch). Manton retained the lead all the time, and won easily, and Slack followed 14 secs. after with Spratt 2 secs. behind. The second heat, also of six laps, was made up of E. Baumann on the 35 h.p. Caudron (3 mins. 35 secs.), R. H. Carr on the old G.-W. 'bus (3 mins. 15 secs.), Geo. W. Beatty on the Wright (2 mins.), and P. Verrier on the Maurice Farman (scratch). This heat again resulted in a win for the limit man, a very fine fight for second place ensuing between Carr and Beatty, the latter obtaining this position by very skilful piloting, but only by a bare two seconds. The final heat of eight laps resulted in a win for R. Slack (scratch), who thus obtained the trophy and prize presented by the High Commissioner for New Zealand. Manton, the limit man, with 5 mins. 50 secs. start, was put out of the race after only one lap owing to the pump spindle of the engine breaking, which damaged the machine to the extent of a chipped propeller and a hole in the top plane. Baumann, 5 mins. 41 secs., had to start after Manton, and thus had to contend with the latter's backwash at the outset, which rather set him back, Beatty passing him on the fifth lap. This the latter did in fine style; both



"Flight" Copyright.

F. P. Raynham flying the Avro biplane at Hendon.

were fairly high, and in passing, Beatty swooped down underneath the Caudron. It was only just before the finishing line that Slack passed Beatty, there being but one second between them.

The next event was the altitude contest, which was won by E. Marty on the Morane-Saulnier, with a height of 5,000 ft. P. Verrier on the 70 h.p. Maurice Farman, was second, with 3,200 ft., and Louis Noel on the new G.-W. 'bus, third, with 2,400 ft. During and after the altitude contest numerous exhibition and passenger flights were made, prominent among which were those given by B. C. Hucks and M. Perreyon on the former's Blériot; on one occasion Hucks was the passenger. J. L. Hall, who has lately taken over the Temple School, made several flights on the Temple 35 h.p. Caudron.

Sunday's proceedings opened shortly after noon with the arrival from Paris of "M. Cardery" on a Morane-Saulnier monoplane. On landing in the aerodrome the wheels caught in a rut, which overturned the machine, throwing out the pilot, who was, however, quite unhurt. Carr, on the G.-W. 'bus was first out in the afternoon, Gougenheim followed immediately after on the Henry Farman. P. Verrier and Louis Noel came out on their respective Maurice Farmans, Noel starting off for a return trip to Brooklands, accompanied by a passenger. He was, however, forced to come down at Sudbury. Next followed exhibitions by N. Spratt on the 60 Dep., W. Birchenough, Carr and Manton on the G.-W. machines, Verrier on the Maurice Farman, Gougenheim on the Henry Farman, Baumann on the Caudron, and Gustav Hamel on the 80 h.p. Blériot, the latter giving an exhibition before leaving for Brooklands with Miss Trehawke Davies. The feature of the afternoon was undoubtedly the splendid effort by B. C. Hucks to beat the British altitude record. He was up for about two hours, and on landing it was ascertained that he had reached an altitude of 9,800 ft. In the meanwhile, Hamel returned from Brooklands, making a fine descent from several hundred feet with his engine stopped. Flying was continued by most of the previously mentioned pilots until late in the evening.

ARE THESE WING-SPARS BENDING?

WE published last week a very remarkable photograph of Mr. N. Spratt flying the 60-h.p. Deperdussin monoplane in a speed handicap at Hendon. The central portion of that picture we reproduce herewith, and on it we have drawn a series of converging lines. The point of interest is to know whether the photograph is evidence of bending in the wing-spars, or is merely photographic distortion.

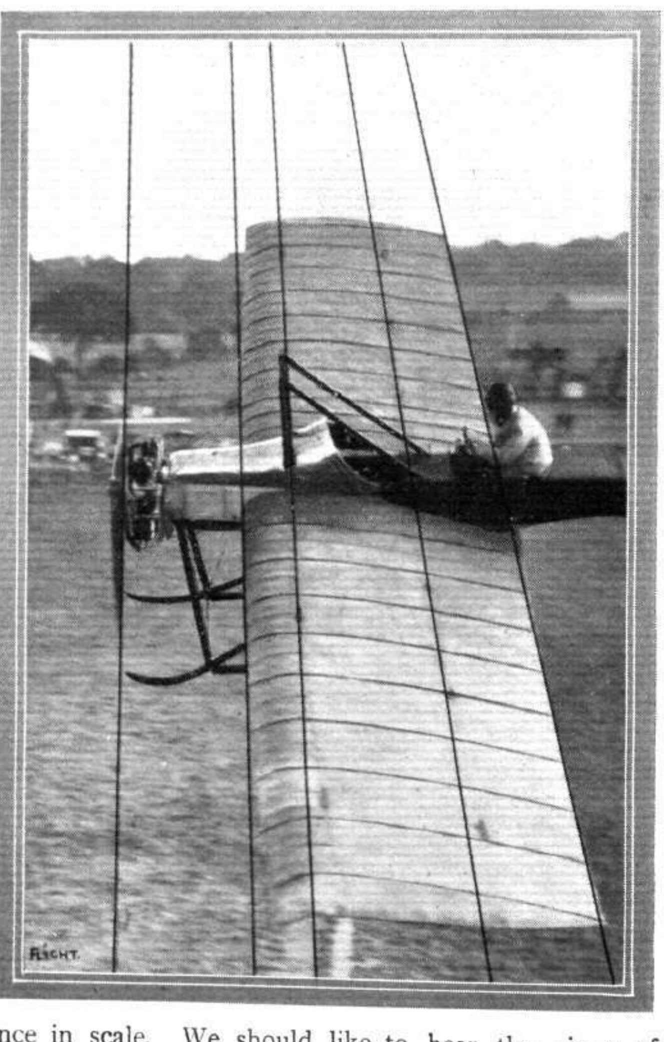
The photograph was taken with a focal plane shutter and a Goerz lens in first-class condition. It was a swung photograph, that is to say the operator followed the flight of the machine, which accounts for the background being blurred. That the swinging was successful is obvious from the clearness of the detail in the engine and other small parts. The aperture was probably about F.5, and the exposure probably about one-thousandth of a second.

Ordinarily, the distortion that one obtains with a focal plane shutter, when taking a picture of a racing motor car with a fixed camera, results in an elliptical wheel. Similar distortion in respect to a flying machine would have put the wings on the slant, so that one wing tip would have appeared much further forward than the other. Again, if the distortion of the near wing tip were regarded as due to lack of focus, one would expect the outline to spread itself over the plate, so as to make the front edge concave to the direction of flight instead of convex, as it appears at present.

Actually, when the machine is at rest, the wing spars are straight, and the front edge is straight. There is no dihedral angle. In the photograph the front edge appears curved in both wings, and the row of attachments by which the upper wires are fastened to the spars also lie in a curved line.

The photograph was taken from a pylon and the near wing tip is within about three yards of the lens. The wing tips are more than an inch from the edge of the negative, so that the machine may be regarded as thoroughly in the centre of the plate. At the moment the photograph was taken, the pilot was commencing to recover from his bank, and judging by the position of his hands on the control wheel, he had just warped the near wing tip down in order to increase its angle of incidence.

If the curvature in the photograph represents bending in the wing, the amount is probably about 3 or 4 ins. at the tip on the actual machine, allowing for the difference in scale. We should like to hear the views of constructors, pilots, and photographic experts on the points raised in connection with the picture.



Questions in Parliament.

IN the House of Commons, on the 13th inst., Mr. MacCallum Scott asked the Prime Minister whether, in view of the services rendered to aviation in this country by the late Mr. Cody, it was proposed to make any provision for his dependents.

Mr. Asquith: I am inquiring into this matter.

On the 14th inst., Mr. Hunt asked the Financial Secretary to the War Office whether two aeroplanes had been lately ordered by the War Office of a new design ensuring greater safety; was this design offered to the War Office by Lieutenant Dunne, a former officer of the British Army, and refused; and whether the patent had now been secured by a French company.

Mr. H. Baker: Two Dunne aeroplanes were ordered in March of this year, and are now three months overdue in delivery. As regards the last part of the question, no official information is available.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Daily Mail £5,000 Prize.

It is hoped that the Competitors will be ready to make another start on Saturday, the 23rd inst., and if not on Saturday, on the following Monday. The starting line is the "Enchantress," which is moored in Southampton Water, off Netley Hospital. Members are reminded that the Royal Motor Yacht Club has kindly extended Honorary Membership of its Club to Members of the Royal Aero Club during the period covered by this Race. Members may therefore spend a very pleasant week-end on board the "Enchantress," and cabins may be booked by telegraphing "Enchantress," Netley Abbey. In addition to the start for the *Daily Mail* Race on Saturday, there will be the trials for the British International Trophy for Motor Boats, commencing at 2.45 p.m. For Members who are fond of sailing, there are six one-design Sailing Boats belonging to the Royal Motor Yacht Club which are placed at our disposal.

The best train is the 10.15 from Waterloo to Southampton West. This train arrives at 12 o'clock, and the Motor Launch from the "Enchantress" picks up passengers at the Town Quay at 12.15.

Paris to London Race.

The International Correspondence Schools has deposited £700 with the Royal Aero Club, to form a prize for an aeroplane race from Paris to London, on Saturday, September 13th, 1913. The race will be open to aviators of British and French Nationality only. The start will be made in Paris, and it is proposed that the finishing point will be at the London Aerodrome, Hendon.

The matter is now being considered by the Competitions Committee, and the regulations will be issued shortly. In the meantime, any aviators wishing to take part are requested to communicate with the Secretary.

The Late Mr. S. F. Cody.

The Aero Club de France has sent the following message to the Royal Aero Club:—

"Profoundly moved by the terrible accident to the valiant Colonel Cody and his brave companion, we beg to tender in the name of the Aero Club de France and of all French aviators an expression of our sincere condolence and kind sympathy in the double mourning in which the Royal Aero Club of the United Kingdom and the whole aeronautical world have been thrown."

Mr. C. Gordon Bell.

Members will be pleased to hear that Mr. C. Gordon Bell has now recovered. He called at the Club a few days ago and received a welcome from his many friends.

166, Piccadilly, W. HAROLD E. PERRIN, Secretary.

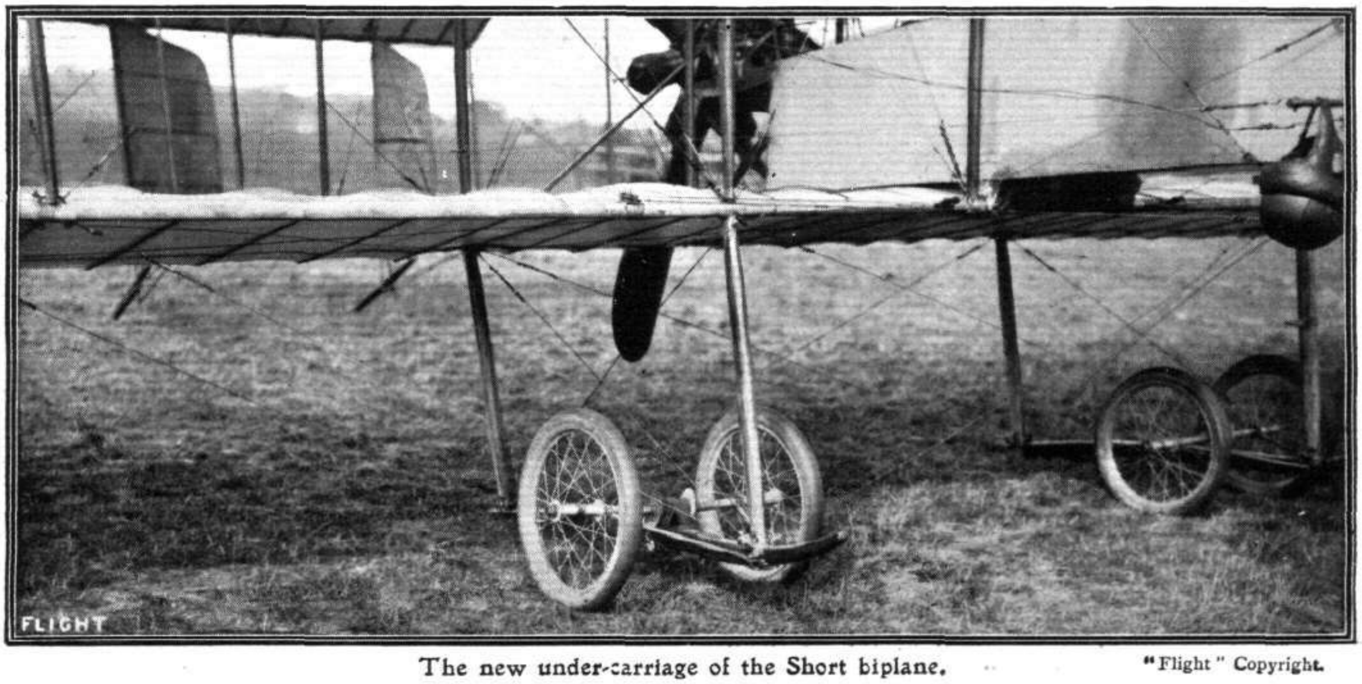
FROM THE BRITISH FLYING GROUNDS.

Brighton-Shoreham Aerodrome.

On Wednesday evening last week, Shaw and Lusteed were on the 45 h.p. Green Avro, the former pupil accomplishing several circuits in succession. Earlier in the day Henri Bregi on the 100 h.p. Canton-Unné-Breguet biplane, accompanied by two passengers, left for Farnborough, and arrived there 32 mins. after leaving the aerodrome. Thursday morning Geere was out, and subsequently Shaw took the 'bus over, handling it in improved style. Lusteed then went for straights, and displayed advancement in not working the controls too much. Gaskell and Shaw were both out on Friday, the latter pupil passing for his *brevet*, thus making the second pilot to be certified at Shoreham. Mr. Cecil Pashley on the H. Farman was taking passengers and doing stunts, and on Saturday this pilot put up some very pretty flights, doing his banking at a nice altitude. Geere tested the air, and then Elliott made curves for some considerable time. Gaskell went up for circuits, and on one occasion, finding it inadvisable to turn in the 'drome, he had no choice but to steer out across country. His landing over the sheds, however, was very neat and showed sound judgment. Mr. Cecil Pashley was in great demand, and several passengers enjoyed their first trip. The Sunday meeting was not well attended, although Mr. Pashley flew a great deal. Monday and Tuesday were rather gusty days, but a fair amount of school work was done in spite of that. M. Beaumont has been flying over Brighton and district nearly every day. "The Chocolate Soldier" is progressing slowly but surely. No doubt the engine will soon be installed.

Brooklands Aerodrome.

At the Bristol School, where Mr. Merriam, its energetic instructor, has been working single-handed since Mr. Bendall's retirement owing to ill-health, there has been much activity during the past week, no less than seven pupils having passed their *brevet* tests in excellent fashion, namely Capts. Jackson and Evans, of the Staff College, Camberley, Lieuts. Darley, Mead, Lewis, and Cameron, and Mr. Kwong Wong—a fine week's work. Lieut. Darley, R.F.A., passed his tests particularly brilliantly, rising steadily to an altitude of 2,000 ft., the greatest height ever attained by a pupil, and effecting a landing close to the



The new under-carriage of the Short biplane. "Flight" Copyright.

mark after a well executed spiral descent — a performance of which both he and his instructor, Mr. Merriam, may well feel proud, and one which should materially help Lieut. Darley in his future career as a member of the Indian Army branch of the R.F.C., at Secunderabad, where he expects to be stationed. Mr. Merriam has now secured an assistant in the person of Mr. R. R. Skene, an old pupil who recently passed his *brevet* tests under Mr. Merriam in a most workmanlike manner, at an altitude of 1,600 ft. Mr. Kwong Wong (whose four brothers are now on their way to this country to follow in his footsteps) made particularly rapid progress, having only been up once by himself before passing his tests, during which he attained a height of 250 ft., and made very good *vol plané* landings.

Mr. Gustav Hamel was in great form on Sunday, the large number of persons who awaited his arrival with Miss Trehawke Davies in that lady's 70 h.p. 2-seater Blériot monoplane, being amply rewarded by some particularly fine exhibition flights. Mr. Hamel's own machine not being available, Miss Trehawke Davies, who is still feeling the effects of her motor accident, very kindly placed hers at his disposal, in order that he might not disappoint visitors.

Fine exhibition flights were also given by Mr. Barnwell on the 50 h.p. Blériot monoplane, and on the 70 h.p. Vickers biplane, on which latter machine he took up the winner of the ballot for the free passenger flight, Mr. F. D. Milne, of Weir Cottage, Chertsey, as well as several other passengers. Mr. Raynham, too, was very busy with passengers on the Avro tractor biplane, 50 h.p. Gnome. Mr. Merriam on the Bristol biplane also gave some excellent exhibition flights.

To meet the convenience of the increasing number of people wishing to book passenger flights at Brooklands, a kiosque has been opened in front of the "Blue Bird" restaurant, where flights may be booked every day of the week. A list of the principal pilots may also be seen with particulars of their respective machines, for it has been noticed that people like to choose their own particular pilots.

Bristol School.—Monday, last week, raining and blowing a gale first thing. At 6 a.m. it was better, and Merriam then for test, and afterwards up with Lord Edward Grosvenor, Lieut. Playfair, Lieut. Strong (new pupil), and behind Capt. Evans. Capt. Jackson flying excellent straights in a wind; Lieut. Mead a short flight. Merriam made another test, but conditions too bad for further school work.

In the evening Merriam up with Lieut. Cameron, and Lieut. Strong. He was also up with Capt. Fisher (new pupil). Darkness put an end to further flying.

Merriam for test on Tuesday before pupils arrived, afterwards with Lieut Cameron on several straights. Pupil then alone for first time, doing straights and circuits very well. Capts. Evans and Jackson figures of eight in fine style. Lieut. Lewis practising landing near a mark. Lieut. Darley doing a neat spiral descent from a good height. Mr. Richard Powell also a spiral and landing very well. Merriam up twice taking Lord Edward Grosvenor, who had control most of the time. Lieuts. Playfair and Strong, this pupil had control at intervals. Capt. Fisher, and once with Mr. Halford, showing the latter banked turns and *vol planés*. All pupils doing very well.

Merriam testing in the evening, and then Lieut. Skene for a flight with Merriam sitting behind; then up with Lieut. Strong, and Capt. Fisher on straights aud circuits. Merriam up behind Lord Edward Grosvenor, and Lieut. Playfair on straights and circuits, Capts. Jackson and Evans, Lieuts. Cameron, Darley and Lewis all flying good solos.

Skene testing on Wednesday and then with Lieut. Strong on circuits. Capt. Jackson then practising landing near a mark, this pupil then went for his ticket which he qualified for in fine style. Lieut. Cameron also took his *brevet* in splendid style, landing very well. Capt. Evans obtained half of his *brevet* in good style. Merriam afterwards up with Capt. Fisher on circuits and behind Lieut. Playfair on straights. It was too bumpy afterwards for further work.

Merriam testing engine twice on Thursday, afterwards up behind Lord Edward Grosvenor, Lieuts. Strong and Playfair, Messrs. Boger, Blackburn, and Wong the latter on circuits left and right hand turns, and teaching pupil to *vol plané*. Mr. Skene with Capt. Fisher and Mr. Boger on straights. Lieuts. Darley and Leivis practising landings near a mark, darkness stopped further flying.

On Friday Merriam testing one machine and Mr. Skene another, Lieut. Darley then away for his *brevet* reaching a height of 2,000 feet, a record on a biplane for a pupil taking ticket.

Merriam for test taking Mr. Halford as passenger. Then Mr. Richard Powell took half of his ticket excellently, reaching a height of 1,500 feet with a spiral descent, landing close to observers. Merriam then up behind Lord Edward Grosvenor, Lieut. Playfair and Messrs. Boger and Blackburn. All a circuit and straights. Lieut. Leivis finished with a solo to sheds.

Mr. Skene testing two machines on Saturday, then up with Lord Edward Grosvenor, Lieut. Strong, and Capt. Fisher. Merriam then up on another machine with these same pupils, also with Mr. Blackburn twice on circuits, teaching right and half turns, banks, &c. Merriam for solo on machine, and Mr. Skene on another. Later, Merriam testing, and found the air ideal for flying, then sent Mr. Richard Powell a solo. Merriam gave a prospective pupil a short trip.

Vickers School.—Monday, last week in the evening, Barnwell on 70 h.p. biplane with Lieut. Haskins and Capt. Ellis (new pupils), then with Mr. Addis, Capt. Charlton and Capt. Downer. Knight on 50 h.p. biplane with Capts. Charlton and Downer. Barnwell on 70 h.p. with Lieut. Haskins and Capt. Ellis.

Tuesday, 5 a.m., Mr. Elsdon on No. 2 mono., Paterson test on 50 h.p. biplane, then Mr. Webb circuits solo. Barnwell on 70 with Mr. Joubert de la Ferte in front seat, circuits and eights. Paterson and Captain Ellis on 50 h.p. biplane, and then with Captain Downer on same machine, each pupil in front seat. Barnwell and Lieut. Haskins on 70. Mr. Webb solo on 50 doing eights. Barnwell, with Captain Charlton, and Lieut. Addis on 70, Paterson and Captain Downer on 50. Barnwell on 70 with Messrs. Ellis, Haskins, Charlton, Joubert, Webb, and Wynn Roberts. Paterson and Ellis on 50. Barnwell with Messrs. Haskins, Downer and Elsdon on 70.

In the evening, Paterson test on 50, then with Capt. Charlton, and Barnwell test on 70, then with Mr. Joubert, and Mr. Wynn Roberts; Paterson with Capt. Downer and Capt. Ellis; Barnwell with Mr. Addis, Capt. Downer, and Mr. Roberts; Mr. Webb and Mr. Joubert circuits solo on 50. Paterson test on No. 2 mono., then Mr. Elsdon on same. Barnwell with Capt. Ellis and Mr. Addis on 70. Paterson, with Capt. Charlton, straights.

Wednesday morning, Paterson test on 50 biplane, then Mr. Webb and Joubert both for eights, solo. Barnwell test on 70 biplane, then with Messrs. Charlton, Ellis, Addis, and Roberts. Paterson and Capt. Downer on 50 biplane, and then with Capt. Ellis. Mr. Joubert circuits on 50. Barnwell on 70 with Messrs. Charlton, Addis and Roberts. Paterson and Capt. Downer on 50. Mr. Webb solo on 50. Barnwell with passenger on 70.

Evening, 5.30 p.m. Barnwell testing 70 h.p. biplane, then with Capt. Charlton, then three passengers in succession. Paterson on 50 h.p. biplane testing new engine. Barnwell with Capt. Ellis on 70 h.p., then with Capt. Downer, and afterwards with passenger. Barnwell testing 50 h.p. biplane.

Paterson on 50 h.p. biplane test, Thursday morning, then with Capt. Downer. Barnwell on 70 h.p. biplane test, then with Capt. Charlton, and then with Capt. Downer.

Barnwell on 70 h.p. biplane in evening with passenger, then with Messrs. Joubert, Roberts, Webb and Ellis. Paterson on 70 h.p. with Capts. Charlton and Downer. Barnwell and Capt. Wood alternately on 70 h.p. biplane.

Friday morning, Barnwell on 50 h.p. biplane with Messrs. Downer and Charlton. Paterson on 50 h.p. with Messrs. Ellis and Roberts, and then test on No. 2 mono., then Mr. Newton Clare and Elsdon on same. Barnwell circuits on No. 2 mono. testing revs.

In evening, Barnwell on 50 h.p. biplane with Capt. Charlton. Capt. Charlton then solo. Barnwell on Blériot testing new propeller. Paterson and Capt. Ellis on 50 h.p. Barnwell on No. 5

The tribute to the late S. F. Cody sent by the Brooklands aviators.

mono., testing same after overhaul at works. Climbing very good. Messrs. Joubert and Webb solos on 50 h.p. biplane, both ready for *brevets*. Barnwell and Capt. Downer on 50 h.p. biplane. Capt. Downer solo on same machine. Barnwell further tests on No. 5 monoplane. Mr. Newton Clare and Mr. Paterson both solo on 50 h.p. biplane.

Barnwell and Capt. Ellis on 50 h.p. biplane Saturday. Paterson on No. 5 mono., then on No. 7 mono. Messrs. Elsdon and Newton Clare on No. 7 mono. Messrs. Charlton, Downer and Webb solos on 50 h.p. mono.

Eastbourne Aerodrome.

Tuesday, last week, Fowler was busy all day passenger-carrying, on the H. Farman waterplane. On Wednesday morning, Gassler had the E.A.C. biplane out, taking up in turns, Messrs. Bevis and Thornley, and Lieut. Bone. Mr. Fill was out doing straights on the 35 Blériot.

Thursday morning, Fowler took the pupils in hand, and put in a good morning's instruction, taking Messrs. Thornley, Bevis and Hunt up several times. Gassler also had Messrs. Thornley and Hunt up on the Bristol. Mr. Fill still pegging away on the Blériot.

Friday, Fowler had Mr. Thornley up twice, Lieut. Bone twice, and Messrs. Bevis and Hunt once each. The waterplane was brought out in the afternoon and was kept going until dark passenger carrying. Gassler had the biplane out and took up Lieut. Bone and Messrs. Thornley, Bevis, Hunt and Wood. Lieut. Bone then did a couple of circuits, solo. Mr. Fill was at it again with his Blériot.

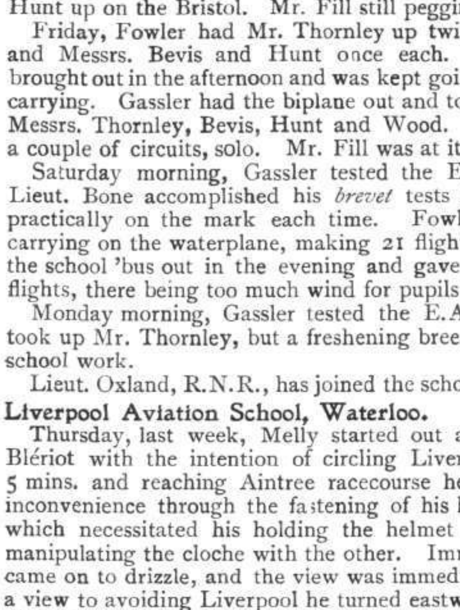
Saturday morning, Gassler tested the E.A.C. 'bus, and then Lieut. Bone accomplished his *brevet* tests in good style, landing practically on the mark each time. Fowler was out passenger-carrying on the waterplane, making 21 flights in all. Gassler had the school 'bus out in the evening and gave a couple of exhibition flights, there being too much wind for pupils.

Monday morning, Gassler tested the E.A.C. biplane, and then took up Mr. Thornley, but a freshening breeze put a stop to further school work.

Lieut. Oxland, R.N.R., has joined the school for a biplane course.

Liverpool Aviation School, Waterloo.

Thursday, last week, Melly started out alone on his two-seater Blériot with the intention of circling Liverpool. After flying for 5 mins. and reaching Aintree racecourse he suffered considerable inconvenience through the fastening of his helmet coming undone, which necessitated his holding the helmet on with one hand and manipulating the cloche with the other. Immediately afterwards it came on to drizzle, and the view was immediately obscured. With a view to avoiding Liverpool he turned eastward with the intention of returning to Waterloo, and for a period of over 30 mins. he was wandering more or less hopelessly in the blinding rain. He has since learnt that he flew over Knowsley Park 10 miles to the east of Liverpool, and Maghull near Ormskirk. It was not until after he was able to get his helmet secured that he was able to think out a course by compass likely to bring him in sight of the sea coast. At the end of 44 mins., however, he sighted the shore through the mist, and coming down to 500 ft. had the satisfaction of finding that he had reached the coast within quite a short distance of the school hangars.



Mr. R. E. C. Penny, who took his certificate in good style last week at the Temple Aviation School, Hendon.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—Mr. Blake and Mr. Webb on No. 109, Monday last week, doing straights with Instructor Manton behind. Mr. North also doing straights.

Next day Mr. Webb and Sir Bryan Leighton doing straights with Mr. Manton. Lieut. Carpenter joined the school and started rolling practice with Mr. Manton, afterwards rolling alone. Mr. North straights with Mr. Louis Noel.

Wednesday, Lt. Carpenter rolling, afterwards doing straights with Instructor. Mr. Francis (new pupil) rolling, afterwards straights with Mr. Birchenough, Mr. Russell doing circuits with Mr. Birchenough.

Mr. Birchenough circuits, Thursday. Sir Bryan Leighton solo straights.

Mr. Reilly, who has just taken his *brevet* at the Blériot School, Hendon.

British Deperdussin School.—Thursday, last week, Mr. Spratt exhibition flights on 60 h.p. 'bus, 1,500 ft., finishing with spiral dives. Next day, Mr. Spratt passenger carrying on 60 h.p. machine; and on Saturday, Mr. Spratt racing in Speed Contest and exhibition and passenger flights on 60 h.p. Mr. Brock exhibition flights on 75 h.p. at a good altitude, landing with propeller stopped.

Sunday, Mr. Spratt exhibition flights on 60 h.p. at 2,500 ft., finishing with spiral *vol piqué*.

W. H. Ewen School.—Monday last week being too windy for school work M. Baumann had out the new 35 Caudron school machine, on which he made an excellent flight. Next day pupils' practice commenced at 4.30 a.m. Capt. Jenings doing straights and half circuits, and Messrs. George and Watts making nice straights. F. W. Goodden put up an excellent exhibition flight. Pupils were again out at 6.50 p.m. Mr. de Havilland flying circuits and figures of eight, Messrs. Stewart, Russell and Goodden exhibition flying, Capt. Jenings straights and half circuits, Messrs. McGregor and Watts good straight flights.

On Wednesday school out at 5 a.m. under the instruction of M. Baumann and F. W. Goodden, another Caudron *brevet* was obtained, Mr. de Havilland passing all his tests in good style flying at an average altitude of 200 ft. and on each occasion landing close on the mark.

Too windy for school work, Thursday, Messrs. Baumann and Goodden doing exhibition flying, while Mr. George Beatty made several straight flights on the 35 Caudron.

Friday school out at 4.40 a.m. Pilots M. Baumann and F. W. Goodden. Messrs. George and Watts good straight flights, Capt. Jenings straights and half circuits. During the afternoon the school was again out, M. Baumann making an excellent flight on the 35 Caudron, reaching an altitude of 2,600 ft., Capt. Jenings and Mr. Watts straights and half circuits, Mr. Carruthers rolling, Messrs. Goodden, Bayetto and Russell exhibition flying.

Saturday, school out at 4 a.m. Pilots F. W. Goodden and M. Baumann. Capt. Jenings and Mr. Watts straights and half circuits. Messrs. Russell and Goodden exhibition flying.

Salisbury Plain.

Bristol School.—On Monday last week, weather too bad for school work in the morning. In the evening Pixton, on biplane, giving tuition to Lieut. Jenkins, and later a trip to a lady passenger. Jullerot, on the monoplane, gave a flight to Lieut. Hallahan. Lieuts. Beroinade and Pascanu each a solo on a tractor biplane. Surgeon Hitch passed the first half of his *brevet* in fine style.

Pixton, on Tuesday, gave biplane tuition to Lieuts. Jenkins and Hallahan, two flights each. Capts. Murphy and Buckland, Lieut. Bateman and Surgeon Hitch each a good solo on a biplane, and on a tandem mono., Messrs. Garnett and Delaplane, and Lieut. Pascanu each a solo. Lieuts. Beroinade and Pascanu each a solo on a tractor biplane. In the evening, Pixton on biplane giving a passenger flight, and later tuition flights to Capt. Hay and Lieut. Hallahan. Solos on a biplane were executed by Lieut. Bateman and Mr. Courtney. Jullerot, biplane tuition to Lieut. Jenkins and Lieut. Hallahan. On the tandem monoplane, Mr. Delaplane

and Lieuts. Pascanu and Beroinade did good solos. Lieuts. Pascanu and Beroinade also did long solos on the tractor biplane, both flying excellently.

Conditions too bad for tuition on Wednesday.

Jullerot tested biplane and tandem monoplane on Thursday. On the tractor biplane Lieuts. Beroinade and Pascanu each did three good solos. Surgeon Hitch went for his *brevet* and passed successfully, flying very well. On the tractor biplane, Sippe did a solo, and Pixton took Capt. Dickson for a flight. On the biplane, an excellent solo was executed by Lieut. Hallahan. Pizey gave tuition to Capt. Hay on biplane. Jullerot also gave biplane tuition to Lieut. Jenkins (two flights) and Lieut. Hallahan (one flight). On the monoplane, Messrs. Garnett and Delaplane each did a solo.

On Friday, Jullerot tested biplane and tandem monoplane, and afterwards gave biplane tuition to Lieuts. Jenkins and Hallahan. Lieuts. Pascanu and Beroinade each did two solos on the tractor biplane. Jullerot also gave biplane tuition to Lieuts. Jenkins and Hallahan. Mr. Garnett was doing landing tests on the tandem monoplane. On the biplane solos were executed by Mr. Courtney, Capt. Murphy, Lieut. Bateman and Lieut. Hallahan.

Jullerot short flight to test conditions. Capt. Murphy, Mr. Courtney and Lieut. Hallahan each did a good solo, the latter finishing in the rain. Pixton gave biplane tuition to Lieuts. Jenkins and Marsh, two flights in bumpy weather, and a flight to a passenger. Lieut. Bateman a short solo on biplane, but returned owing to bumpy weather. Lord Wellesley next did a solo, and had plenty to do in amongst the bumps. Jullerot a short flight to Air-Mechanic Locker and two prospective pupils.

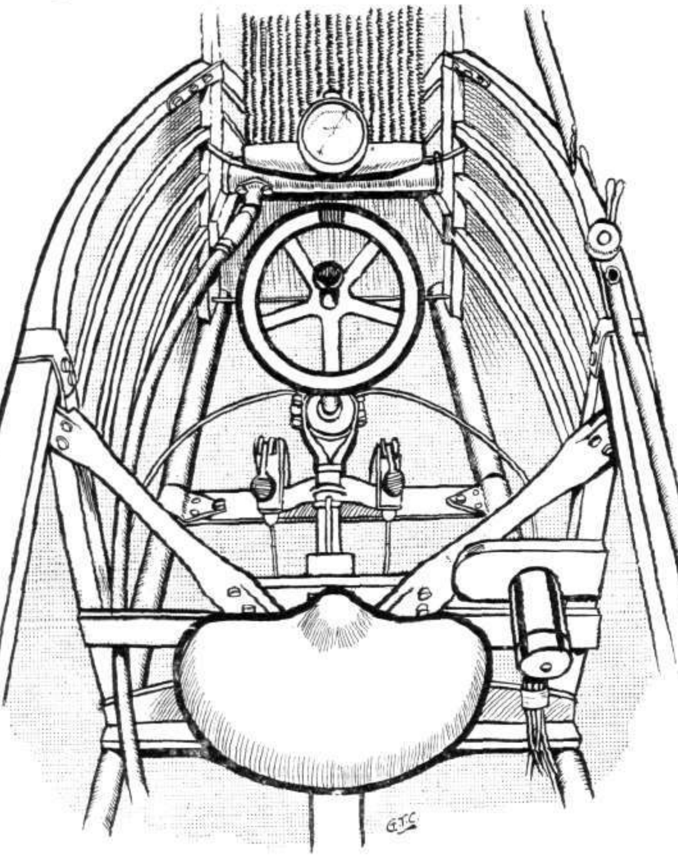
On Saturday, Pixton with Lieut. Marsh on biplane, then Capt. Murphy, Lieut. Hallahan, Lord Wellesley, Lieut. Bateman, and Mr. Courtney each a solo. Capt. Murphy stopped his motor near Fargo, so Pixton, with Mr. Delaplane flew to his assistance on the tandem mono. Mr. Delaplane then flew the monoplane solo for about 10 mins. Mr. Garnett also out on a monoplane, and landed to help Capt. Murphy. Later, Mr. Garnett another solo on monoplane. Pixton tuition to Lieut. Marsh, one flight, and Lieut. Jenkins two flights. On the tractor biplane, Lieut. Beroinade did three solos of 20 mins. each.

Royal Flying Corps. 3rd and 4th Squadrons (Netheravon).—Monday week opened fine, and Capt. Fox was on 70 h.p. Blériot for 30 mins. at 3,500 ft., after which he made a similar flight, although not quite so high, with Air-Mechanic Beaumont, and another on the 50 h.p. Blériot for 30 mins. at 1,700 ft. Lieut. Conran on 50 h.p. Blériot also did good flying for 30 mins. at 2,000 ft., after which Lieut. Joubert de la Ferte took up the machine, after which Lieut. Conran made another 20 mins. trip on it. In the evening Capt. Fox took up Major Raleigh as passenger on the 70 h.p. Blériot for 22 mins. at 2,200 ft., and then had Lieut. Soames as passenger. Lieut. Wadham afterwards made four trips on the Blériot, and reached some good heights. Lieut. Joubert de la Ferte made two flights on Avro, being relieved later by Air-Mechanic Yates, who made a good show on the machine, and then by Lieut. Wadham. Capt. Herbert on Henry Farman 351 for three good flights, carrying passengers in the person of Major Raleigh, Lieut. Burrows and Air-Mechanic Gliddon. All doing reconnaissance work. Lieut. Abercrombie on Avro 285 for two flights, after which Lieut. Burrows also made two flights on it. Capt. Allen on B.E. 203 for two trips, after which Lieut. Porter took the machine up twice, as also did Lieut. Christie.

On Tuesday, Capt. Herbert, on Henry Farman 351, took Air-Mechanic Wilson round the surrounding districts, while Capt. Allen, on B.E. 203, had Air-Mechanic Hobbs, and subsequently took up Lieut. Christie. Lieut. Christie then piloted the machine, once with Air-Mechanic Dunville as passenger. Lieut. Abercrombie on Avro 285 went to Tidworth, and flew over the surrounding districts for 55 mins.

Capt. Allen on B.E. 203 made a good cross-country flight on Wednesday to Stanway, in Gloucestershire, with Air-Mechanic Hobby, the time taken being 1 hr. 10 mins. Lieut. Porter made two flights at Stanway on B.E. 203, flying in good style. Major Brooke-Popham made two splendid flights on Avro 285. Lieut. Conran on 50 h.p. Blériot, and Lieut. Wadham on 70 h.p. Blériot, both made good cross-country flights to Stanway, time taken being 1 hr. 45 mins., height being all the journey 3,000 ft. Lieut. Conran made a short excursion round the districts, and in the evening made another one. Lieut. Wadham flew from Stanway to Cheltenham on Blériot in 35 mins. at 4,000 ft.

Lieut. Conran on Blériot returned from Stanway on Thursday in 1 hour, being lost several times during the journey owing to clouds. Lieut. Wadham with Air-Mechanic Robins also arrived from Stanway, time taken being 48 mins. Capt. Fox afterwards made a flight on the same machine after Lieut. Wadham had landed.



"Flight" Copyright.

The *nacelle* of the Cody aeroplane, as seen from above.

Capt. Allen on B.E. 203, with Air-Mechanic Hobby as passenger, returning from Stanway lost their way several times owing to the clouds, and had to descend at Stockbridge. Capt. Herbert on H. Farman made fine trips, his passengers including Lieut. Christie, on reconnaissance work, Lieut. Robinson, Mechanic Littlejohn, and Mr. Sunman of the Royal Aircraft Factory. Lieut. Roupell also made two flights on H. Farman 286.

Friday, Capt. Allen returned from Stockbridge, with Mechanic Hobby as passenger. Lieut. Roupell on H. Farman 286, taking Capt. Fox as passenger to Farnborough, time there and back being 2 hrs. 10 mins. in a stiff rain. Capt. Allen, on H. Farman, took Mechanic Miles as passenger to the Central Flying School, Upavon. No flying Saturday owing to C.O. inspection from Farnborough.

AIRSHIP NEWS.

The "Eta" Makes Her Appearance.

A TRIAL trip was made with the latest Army airship, "Eta," on Monday evening. About 7.15 the new airship was brought out of the shed at Farnborough, and a quarter of an hour later made a fine ascent, and cruised over the district for 20 mins. Larger than the "Gamma," but not quite so big as the "Delta," the envelope has a capacity of 70,000 cub. ft., and the airship is driven by two 80 h.p. Canton-Unné motors. During a trial on Wednesday, the new craft showed her powers by towing back the little Willows airship, which had been stranded at Odiham, Hants, with engine trouble.

An Airship for New Guinea.

FROM Berlin it is reported that the Aerial Navigation Society has decided to organise an airship station in New Guinea, and to arrange for expeditions in various parts of the country.

New Clement Bayard Airship.

THE "Clement Bayard VI" made a trial trip of nearly an hour's duration over the neighbourhood of Compiegne. There were six persons on board including M. Clement Bayard, and the airship landed without recourse having to be had to the guide rope.

Trials with the "Lieutenant Chauré."

THE Zodiac dirigible, "Lieutenant Chauré," having been reinflated at Epinal, made some good cruises over the neighbourhood at the end of last week. The ladies of Epinal have combined to present the aerial cruiser with a very fine flag for use on special occasions.

The "Adjudant-Vincenot" Visits Issy.

A VERY fine voyage was made by the airship "Adjudant-Vincenot" on the 15th inst. Leaving Toul with eight persons on board, at 6.25 a.m., the airship made the 260 kiloms. in seven hours.

BRITISH NAVAL AND MILITARY AVIATION.

Below we reproduce in full a memorandum issued by the Government as a white paper, dated August, 1913, which is in continuation of that presented to Parliament in April, 1912, and contains a statement of the progress made by the Royal Flying Corps during the first year of its existence. The previous memorandum was published in Flight for April 20th, 1912, p. 346.

General.

1. The scheme for the organisation of the Royal Flying Corps was communicated to Parliament in a parliamentary paper dated April 11th, 1912 [Cd. 6067].

2. Apart from a few alterations in detail, the development of the Royal Flying Corps has been carried out on the lines recommended in that scheme.

3. The Royal Flying Corps now comprises—

The Central Flying School.	The Military Wing.
The Naval Wing.	A Reserve.

There is also the separate establishment of the Royal Aircraft Factory.

4. Considerable progress has been made. The Central Flying School has been established on Salisbury Plain, and two classes of flyers have already completed their course of training. The Naval Wing has established aeroplane stations on the coast and arrangements are being made for the establishment in the near future of additional aeroplane and airship stations; a cruiser is also being fitted out for aeroplane work with the Naval Wing, and has commenced her duties. Four aeroplane squadrons of the Military Wing out of a total establishment of seven squadrons have been formed, in addition to the Military Airship Squadron. A Reserve of the Royal Flying Corps has been established. The Royal Aircraft Factory has assumed the additional duties assigned to it, and lists of privately owned aeroplanes which could be utilized in time of war have been compiled. Further, arrangements have been made for landing facilities for the Royal Flying Corps at four private aerodromes; airships and aeroplanes have taken a prominent part in the army manœuvres, and experiments have been made in various methods of aerial warfare.

5. The number of flyers in the Royal Flying Corps who have received the certificate of the Royal Aero Club, compared with the number twelve months ago, is shown below:—

	May, 1912.	May, 1913.
Central Flying School	0	9
Naval Wing	11	57
Military Wing	21	134
Royal Aircraft Factory	2	4
1st Reserve	0	12
2nd Reserve	0	2
Total	34	218*

6. The work of the various component parts of the Royal Flying Corps has been co-ordinated by the Air Committee (see paras. 61, 62), during the past year.

7. It has been found necessary by the Admiralty to establish an Air Department to deal with matters connected with the administration of the Naval Air Service.

At the War Office a Departmental Air Committee and the various existing branches have hitherto dealt with the work connected with the Royal Flying Corps, but steps are being taken to organise a special branch for the conduct of all War Office work in connection with aerial services. Within the last year it has been necessary to add officers and clerks for aviation work in the War Office.

Conditions of Service.

8. The conditions of service in the Royal Flying Corps and its reserves are practically the same as those recommended in the original scheme.

The Admiralty have decided to enter the personnel for the naval portion of the Reserve (other than officers and men of the Royal Navy) in the Royal Naval Reserve. The conditions of entry and service are being based broadly on the same lines as those laid down for entry into the Reserve of the Military Wing.

9. All members have accepted the obligation to serve in any branch of the Royal Flying Corps in time of war.

10. Civilian probationers as well as officers of the Army or Navy are awarded £75 for expenses, if they have obtained their Royal Aero Club Certificate under private tuition.

So far, eight civilians have joined the Military Wing and its reserve, and one has joined the Naval Wing, three more being under training for the latter at the present time.

Reserve of Aeroplanes.

11. A first list of aeroplanes has been produced, showing that there are 99 privately-owned machines in the United Kingdom, of which 60 could be made of some use for war purposes. This list will be revised every six months, on April 1st and October 1st.

* Of these, 33 officers have passed the highest test for the Naval Wing and 68 for the Military Wing.

THE CENTRAL FLYING SCHOOL.

Situation.

12. A suitable site for the Central Flying School has been found at Upavon, on Salisbury Plain.

13. The desirability of establishing an Annexe of the Central Flying School at some place on the coast within easy flying distance, where the sea portion of the elementary training in machines, capable of alighting on and rising from land or water, can be given, is under consideration.

Progress in Training.

14. Three courses a year are held. It has been found desirable to reduce the length of each course to 13 weeks, in order to allow of sufficient intervals between them in which to overhaul the machines and grant leave of absence to the officers and men on the staff. The first course of instruction was completed before the end of 1912.

15. The intervals between the courses further afford a margin, which enables any particular course to be extended by a week or ten days in special circumstances. Up to the present time the opinion that all seasons of the year are likely to provide equal periods of time during which flight is possible has been borne out.

16. Owing to the lack of accommodation at the Central Flying School, it is necessary for the present, in order to relieve the pressure, to carry out a certain amount of the elementary training at the two wings.

17. In order to maintain a universal standard of merit throughout all the branches of the Royal Flying Corps, it is considered desirable that the examination of all candidates should take place at the Central Flying School, under the supervision of the Commandant.

18. There are, however, certain tests which it is necessary for every candidate to undergo during some period of his training, and the repetition of these tests during the examination would only entail a waste of valuable time.

19. The Air Committee have recommended that all candidates presenting themselves for examination at the Central Flying School should be furnished with a certificate, stating that they have completed the tests referred to in the preceding paragraph and that a syllabus, showing the standard of attainment expected during the examination proper, should be prepared by the Commandant of the Central Flying School and circulated, through the usual official channels, to all branches of the Royal Flying Corps.

20. Instruction has been given in the following subjects:—Flying, General Principles of Mechanics and construction of engines and aeroplanes, Meteorology, Observation from the Air, Navigation and steering when flying by compass, Cross-country flights, Signalling by all methods, and Types of Warships. In addition, the construction and erection of aeroplanes is studied, and the stripping, assembling, and tuning-up of internal combustion engines is taught.

21. As regards the standard to be attained by graduates at the school, the pilot's certificate of the Royal Aero Club, with the addition of a standard of technical knowledge in the care and maintenance of aeroplanes and their engines, has been adopted as a qualification for a Second Class Flyer's certificate, and the tests to be carried out before a first class certificate is granted have recently been considered by the Air Committee at the request of the War Office.

22. The standard aimed at, in addition to flying, is that an officer, on completion of his course, shall be capable in all respects of keeping an aeroplane and its engine in thoroughly good order and condition.

Buildings.

23. The temporary buildings referred to in the previous report were erected with great expedition, and some were completed by June 21st, 1912. The barracks were completed on August 17th, 1912, and the power station and the motors in the workshops were available by November 25th, 1912. The temporary buildings will shortly be replaced by more permanent ones.

24. The permanent buildings first to be erected are the quarters for the officers and men on the staff, who have to spend the whole year at the School, and for all married non-commissioned officers and men, as well as messes for all officers and men.

Transport.

25. It was mentioned in the previous Report that complete war transport for two flights of aeroplanes, that is to say, 24 vehicles of various kinds and 28 drivers, would be provided for the Central Flying School.

Some of these vehicles have been provided, and most of the others are on order.

Meteorological Work.

26. The meteorological officer, Mr. G. Dobson, joined the school on February 10th, 1913.

27. Since that date over 70 pilot balloons have been sent up and traced by theodolites with the object of ascertaining the velocity and direction of winds above the surface. The results are being collected, and when more data are obtained they will be worked up thoroughly. Those of the anemograph are also being worked up.

28. The anemometer head is to be raised to a height of 85 ft. when the new station is ready. This should be completed by the beginning of the next course.

29. In the immediate future it is intended to carry out thorough experiments (already begun), with the object of investigating the nature and structure of gusts; and also the effects produced by valleys and trees.

When sufficient records are obtained, the average gustiness of the wind from each direction, and the average velocity at each hour of the day will be calculated, besides other facts concerning meteorological and flying conditions.

30. Daily weather charts are drawn each day, and a forecast for the next day is issued.

THE NAVAL WING OF THE ROYAL FLYING CORPS.

General Progress.

31. The organisation of the Naval Wing has proceeded satisfactorily. Some slight alteration of pay is found to be necessary owing to the pay of some of the higher naval ratings who are not trained as pilots being less than it would be if the men were serving in other branches of the Navy. This matter is receiving consideration. Questions as to the risk pay to be paid to men who are not pilots, but who are taken up in machines for observation, wireless telegraphy, gunnery, and other duties, are under consideration.

32. The Naval Flying School at Eastchurch has been utilised for training most of the personnel for the Naval Wing, both in elementary and advanced flying.

It is also used as a depôt for the trained pilots, pending their disposal to the various air stations which are being established round the coast.

33. The total of the numbers trained for all branches of the Naval Wing is 184, and 114 more are now under training.

34. The staff originally recommended has been found sufficient to carry out the training at Eastchurch.

35. A Captain has been appointed to command His Majesty's ship "Hermes" and for Naval Air Service duties.

The "Hermes" has been fitted to carry hydro-aeroplanes for experimental purposes.

36. Five large double aeroplane sheds have been erected at Eastchurch, and, in addition, some sheds have been rented from private owners. Permanent residential quarters have also been built at the Naval Flying School.

37. Owing to the increasing importance of hydro-aeroplanes, it has been found necessary to establish a hydro-aeroplane station on the Isle of Grain in the Medway.

38. In addition to this station, sheds are erected or are in course of erection at Calshot, Harwich, Yarmouth and Rosyth, and negotiations are in progress for the establishment of further sheds in other localities.

39. Five motor cars and one motor lorry has been purchased for transport work; men have been sent to the Naval Motor School at Portsmouth to be trained as drivers. Steps are also being taken to acquire a number of motor boats for use at the various hydro-aeroplane stations.

40. A large amount of experimental work has been carried out in connection with the offensive and defensive qualities of aeroplanes.

41. The manufacture of aeroplane and airship engines is being carefully watched and inspections made from time to time. Four naval engineer officers have been specially selected for this work.

42. Attention has been paid to the question of the acceptance and construction of naval aircraft. A system of close inspection whilst under construction, by Admiralty inspectors, has been instituted.

THE AIRSHIPS OF THE ROYAL FLYING CORPS.

43. There are six airships varying in size from 20,000 to 280,000 cubic feet capacity now in the possession of the Royal Flying Corps, and one is being built at Farnborough. Steps have been taken, with the sanction of the Government, to make a considerable increase in the number of airships.

THE MILITARY WING OF THE ROYAL FLYING CORPS.

Organisation.

44. The Military Wing of the Royal Flying Corps came into existence on May 13th, 1912, on which date the existing Air Battalion and its Reserve were absorbed into it.

45. The Headquarters and the Flying Depôt Line of Communication were established at Farnborough. The squadrons composing the Military Wing are being formed and distributed as shown in the table below :—

Unit.	Date of Formation.	Peace Station.
Wing Headquarters	1912	South Farnborough
1st Squadron (airships and kites) ..	1912	,,
2nd ,, (aeroplanes)	1912	Montrose
3rd ,, ,, ...	1912	Netheravon
4th ,, ,, ...	1912	South Farnborough
5th ,, ,, ...	1913	,,

Transport.

46. Forty cars and lorries to provide the necessary transport for these squadrons have already been delivered, and 70 more are on order.

Personnel.

47. Of the 182 flyers proposed in the original scheme as the establishment for the Military Wing, 68 officers have qualified, and 1 officer and 26 men are under training.

48. The position in regard to the recruiting of the Military Wing is as follows :—

Transferred from Air Battalion	88
Transferred from the Regular Army exclusive of the Air Battalion	207
Directly enlisted	387
Total	682

Training.

49. Owing to the Central Flying School being unable to undertake all the elementary training at present (*see* paragraph 16 above), a certain number of officers have been trained with the Military Wing, and have gone to the Central Flying School for examination.

50. A large amount of experimental work has been carried out in connection with the offensive and defensive qualities of aeroplanes.

51. An account of the work done by the Royal Flying Corps during Army Manœuvres, 1912, will be found in paragraph 63 *et seqq.*

The Military Aeroplane Competition.

52. The Military Aeroplane Competition took place at Larkhill, Salisbury Plain, during August, 1912. A report on this has already been published. [Cd–6826.]

THE ROYAL AIRCRAFT FACTORY.

53. The Army Aircraft Factory, which was already in existence at Farnborough, was re-named the Royal Aircraft Factory on the establishment of the Royal Flying Corps.

Experimental Work at the Royal Aircraft Factory.

54. The part of the work at Farnborough, which is essentially of an experimental character, is carried on in close relation with the testing of models at the National Physical Laboratory.

The technical work carried out at the factory may be classified under the following heads :—

i. Design, relating to (*a*) airships and equipment, (*b*) aeroplanes, (*c*) propellers.
ii. Physical investigation, instrument design, stability, and gun measurement, aeroplane gun trials.
iii. Researches on fabrics, dopes, fuel, and oil.
iv. Researches on metals.
v. Experiments on engines and design of engines.
vi. Inspection of Royal Aircraft Factory's and private firms' construction.
vii. Testing all aircraft except those bought under aeroplane competition.
viii. Flying, bomb dropping, photography, and trials with machine guns.
ix. Keeping the main aeronautical and engineering store.
x. The measurements of gliding angle, speed, &c., at the military aeroplane trials.

Airships.

55. Considerable progress has been made in connection with the designing of Airships.

56. The airship "Delta," of 160,000 cubic feet capacity, was completed in 1912. This shows a great advance in size since 1909, when the airship "Baby," of 23,000 cubic feet, was enlarged to the "Beta" of 33,000 cubic feet, the "Gamma," of 80,000 cubic feet, being also in process of construction at that time.

Aeroplanes.

57. A special study has been made at the Royal Aircraft Factory of the design of aeroplanes having a wide range of speed.

58. The designs have been worked out to meet the requirements of the different classes of aeroplane suitable for warlike purposes.

British and Foreign Engines.

59. In the previous Report considerable stress was laid on the importance of obtaining a perfectly satisfactory engine for aeroplanes; and, in order to keep abreast of all practical developments in the aeroplane industry in all parts of the world, it was proposed to approach certain engine builders at home and abroad with the view of obtaining engines for test. Action in this direction has been taken.

Improvements in the South Farnborough Aerodrome.

60. The passage which the Sub-Committee recommended should be cleared from Laffan's Plain to the Royal Aircraft Factory, *via* Ball Hill, is in process of being made.

THE AIR COMMITTEE.

61. The Air Committee, which is a permanent Sub-Committee of the Committee of Imperial Defence, was established in order to co-ordinate the work of the various departments which are affected by the aerial policy of the Government.

In addition to the meetings of the whole Air Committee, a large number of Sub-Committee meetings are held.

62. Questions are referred to the Committee by the Committee of Imperial Defence and the Departments of State. In addition, the individual members of the Committee are invited to bring forward for informal discussion any matter which they consider likely to prove of interest or advantage. In this matter the Committee provides convenient facilities for conference in all branches of aerial development.

EMPLOYMENT OF THE ROYAL FLYING CORPS IN MANŒUVRES, 1912.

Naval Manoeuvres.

63. Naval aircraft were present at the Naval Review which preceded the Naval Manœuvres of 1912, and one hydro-aeroplane took part in the Naval Manœuvres.

Army Manœuvres.

64. During the Army Manœuvres, owing to the use of monoplanes having been temporarily discontinued on account of accidents which had occurred, it was only pos-ible to employ one squadron, composed of seven biplanes on each side, including a flight of three from the Naval Wing.

65. The airships "Beta" and "Gamma" were also employed, one on each side, a proportion of the naval crews under training being used.

66. In spite of the temporary nature of the aircraft organisation, a great deal of information was collected for the commander of each side.

67. Only trifling damages to the equipment were sustained during the Manœuvres, but the weather was generally favourable.

68. The Officer Commanding the Military Wing stated that he thought it probable that no aeroplanes or engines, and few pilots and observers, would stand the strain of more than 3 months' active service without relief.

69. The following points brought out during the Manœuvres, are of interest:—

Night work.—No night work was carried out by aeroplanes. The airship "Gamma," made one night flight with the object of gaining experience in reconnaissance and bomb-dropping. After carrying out the exercise successfully she failed to land at her field base on her return, and rather than risk a landing at an unknown spot she remained in the air until after dawn.

Method of Communication.—The great advantage of fitting a wireless telegraphy apparatus in aircraft was shown by the work accomplished by the airship "Gamma."

A considerable advance has been made in the method of dropping messages.

The necessity for providing motor cyclists for the conveyance of messages was clearly shown, as it was often difficult for machines to land close to headquarters.

Notes on Reconnaissance.—The necessity for a high standard of military training in the case of observing officers for both strategical and tactical reconnaissance was clearly indicated; untrained observers are quite useless.

These observers should be kept in possession by the general staff of all information gained and of movements intended. Moreover, staff officers, skilled in observing, should occasionally go up themselves.

Aircraft should save cavalry much unnecessary work, but can in no way replace this arm of the Service.

Concealment of Troops.—The introduction of aircraft into land warfare will probably lead to a largely increased number of movements being made by night and to attempted concealment by day.

Troops halted in open country should adopt loose formations.

It is impossible to hear the report of guns, but the smoke or flame of discharge is plainly visible.

Observation from Aircraft.—Difficulty was experienced in discovering whether trenches were occupied or not.

Bivouacs were easily detected.

It will probably be difficult to estimate the strength of troops occupying towns in billets.

Artillery can generally be identified both on the march and in bivouac.

Recent Legislation Regarding the Control of Aircraft.

70. An Act has been passed which amends "The Aerial Navigation Act, 1911," in such a manner as to enable a Secretary of State to make orders prohibiting the navigation of aircraft over prescribed areas for purposes of the defence or safety of the realm, and to compel compliance when an aircraft disobeys such signals.

71. The necessary provision, to enable aircraft to be requisitioned in time of war, has been made in "The Army (Annual) Act, 1913."

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THE ROYAL FLYING CORPS.

THE following appointments were announced by the Admiralty on August 13th:—

Engineer Lieuts. T. R. Cave-Brown-Cave to the "Hermes," additional, for course of instruction in airships, to date August 12th; and C. D. Breese to the "Hermes," additional, for course of instruction at Central Flying School, to date September 17th.

The following appointments were announced by the Admiralty on August 15th:—

Lieuts. E. T. R. Chambers, H. A. Williamson, and R. J. Bone, to the "Hermes," additional, for course of instruction at Central Flying School, to date September 17th. Lieuts. C. H. Collett (R.M.A.), and C. F. Kilner (R.M.L.I.), to "Hermes," additional, for course of instruction at Central Flying School, September 17th.

Sub.-Lieut. R. H. Walley to "Hermes," additional, for course of instruction at Central Flying School, September 17th.

The following appointments were announced by the Admiralty on August 17th:—

Second Lieut. C. P. Pizey has been transferred to the Naval Wing as Sub-Lieut. R.N.R., and appointed to the "President," additional, as Acting Lieut. R.N.R., for temporary service at Admiralty, to date August 7th.

The following appointments were announced by the Admiralty on August 18th:—

Capt. (temporary Major) R. Gordon, R.M.L.I., to the "Hermes," additional, for Firth of Forth Naval Air Station, as Squadron Commander, in command, to date August 15th. Lieuts. (R.M.L.I.) T. S. Creswell and C. E. Rathborne, to the "Hermes," additional, for Calshot and Harwich Naval Air Stations respectively, to date August 15th. Lieuts. R. Ross, to the "Hermes," additional, for Cromarty Naval Air Station; H. Vernon, to the "Hermes," additional, for Firth of Forth Naval Air Station; A. Bigsworth, to the "Hermes," additional, for Calshot Naval Air Station, to date August 15th.

The following appointments were announced in the *London Gazette* of the 19th inst.:—

R.F.C.—Military Wing.—*Special Reserve of Officers.*—Second Lieut. Henry de G. Warter resigns his commission. Dated August 20th, 1913.

The undermentioned to be Second Lieutenants (on probation). Dated August 20th, 1913: Eric Bentley Baumann and Richard Raimes Orr Paterson.

ROYAL FLYING CORPS (MILITARY WING).

WAR OFFICE summary of work for week ending August 15th:—

No. 1 Squadron. South Farnborough.—The "Beta" was out again early in the week after being thoroughly overhauled. She made several reconnaissance and instructional flights daily. The "Eta" is expected to undergo her trials next week. The Kiting Detachment left for Shoeburyness on the 14th.

No. 2 Squadron. Montrose.—Flying took place most days during the week. The Squadron has been busy preparing for the Irish Manœuvres.

No. 3 Squadron. Netheravon.—All three flights were very busy throughout the week. The total mileage amounted to 1,383 miles. Three machines went out on a training scheme lasting several days. They returned on the 14th.

No. 4 Squadron. Netheravon.—Most of the pilots were flying daily on Maurice Farmans and Breguets. Several officers and men are receiving instruction at aeroplane and engine factories.

No. 5 Squadron. South Farnborough.—All the pilots were flying daily on Maurice Farmans, carrying out reconnaissance work.

Flying Depôt. South Farnborough.—Experiments on various lines were continued on B.E.s and Henry Farmans.

ARMCHAIR REFLECTIONS.

By THE DREAMER.

Let Us Be Just.

I DON'T know whether there is anything in the theory of reincarnation, but if so, one of my previous visits to this world must have been in the interests of justice; indeed, I should not be at all surprised to know that at one time I was a sort of Lord Chief Justice to some pre-historic tribe; at any rate, I do like to give the devil his due. I must admit that it takes a goodly stretch of the imagination to see me sitting on a rock, clothed in the costume of the period, handing out justice to all and sundry. Even so, I do not think I should have gone to quite the lengths of Solomon, as instanced by the cause *celebre* of Mother *v.* Mother, with baby holding a watching brief, but then, you see, Solomon was wise.

It is easy enough, when anything has happened, to say "I told you so." I will even plead guilty to having used these very words myself, on more than one occasion; but when I have come to think it over afterwards I have had to admit to myself that, although I did tell them so, it was not until afterwards. And I am afraid there are many of us who can be very wise after we know the facts, and when we say "I told you so" the other fellow is generally too well bred to hint that he has no recollection of your having done so. I hold no brief for the Government, either past or present—I have even at times pointed the finger of scorn at them; but I do think mistakes happen sometimes which, had the best of us been in their place at the time, with the limited knowledge then available, would have happened just the same.

The Dunne Aeroplane has suddenly—thanks to the lay Press—jumped into popular fame, and the Government has been criticised for having some years ago "sacked" Lieut. Dunne, as it is put. Now, I would like to ask, how many of these papers knew anything worth speaking about of Mr. Dunne and his machine until these last few days? and what would their decision have been had they been on the board of control in those early days, when nobody knew for certain whether a machine would ever be evolved at all, that would be of any real use or benefit as a method of attack or defence? We of the technical Press have known of, and watched Mr. Dunne for some years now, and quite a while ago came to the conclusion that he was working on sound lines, and although we probably should not have liked to have said that he alone was building the machine of the future, we have known all along that he was building a machine, the theoretic principles of which were right, in so far as even up to now we have been able to ascertain them, and that if he did not quite build the machine of the future, it would at least be as good as another. We did not know all this, however, so long ago as 1907, when the first machine was finished, and the Government would only send along an engine of 20 h.p., and scouted Mr. Dunne's idea that one of 50 h.p. should be sent.

They said at that time, that if engines of that power were needed, aeroplanes would never be of any use, and I doubt not that many other folk would have said the same thing. We know now, of course, that a 50 h.p. engine is quite a low power for any machine that is expected to do real work, and have a reserve of power for emergencies, but in justice to all I must say that even a year or two after this date, the same papers which are to-day blaming the War Office for losing Lieut. Dunne were giving much space and using much ink in sarcastically describing Mr. A. V. Roe's attempts to fly a triplane at Lea Marshes, with, I believe, a 9 h.p. engine. Even later, when Mr. Roe had succeeded to some extent, he was the butt of the Press; "Roe the Hopper" they were pleased to call him, so I doubt not they would have thought much the same of Mr. Dunne. And yet where is A. V. Roe to-day, and what position do his machines hold in the world of aviation? Some day these papers will wake up to the fact that the Avro is in the first flight of aeroplanes, and they will say "I told you so." I don't know that Mr. Roe ever tried to interest the War Office in his machines in the same way that Mr. Dunne and the late Col. Cody did, but had he done so, there is not much doubt he would have shared the same fate as his fellow workers; we know things now that we did not know then; let us be just.

The Government are rather between the Devil and the deep sea in matters aeronautical. If, in their opinion (and even experts cannot be quite sure), a certain machine does not promise well, and they let it go, and it eventually turns out trumps, they get walked into for being so short-sighted as not to have seen it was a good thing; and we flatter ourselves that, had *we* been there, we should have known at once, and have gripped it with both hands. If, on the other hand, however, a machine looks like panning out all right so far as any man can judge, and they take it up and spend a lot of money on experiments, and have to admit failure at last, we are ever ready to say we knew that from the first, and that any man with only half an eye might have seen it; and again they get walked into for wasting public money. I think mistakes of this description, made so long ago as those of Cody and Dunne are excusable, but the time has come when machines are at any rate past the initial experimental stage, and the mistake that is now being made, that is, of not getting our aerial defence into something like reasonable magnitude, is inexcusable.

Machines may even now be inefficient; it is quite within the bounds of possibility that the machine of the future may be a totally different affair from the machine of to-day, and that all the machines we buy, or construct now, may have to be scrapped in the not very distant future. Be that as it may; the machine of to-day is sufficiently good to justify foreign powers in getting a goodly stock of them, and they are sufficiently good to be a menace to us until such time as we put our house in order in the same way. It may cost a lot of money, but even should the machines have to be scrapped before very long, it is still necessary from the point of view of opposing might to might, and in providing for the interval between what we have got to-day, and what we might have to-morrow. The money will have served just as good a purpose as it could under any other circumstances when used for provisional defence. It was the wooden walls of old England that put her in the first place as a nation; had we refused to sail the high seas until such time as we could have had iron Dreadnoughts, there would not have been much to defend by this time. Our wooden ships are all scrapped now, and they cost no end of money; but they served their purpose at the time, because they were quite as good as the ships owned by any other nation.

THE THEORY OF THE DUNNE AEROPLANE.

(*Continued from page* 914.)

Now the first device with which we have to deal I call the "Vanishing Wing" device.

When a machine, travelling straight ahead, is struck by a side gust, the effect of compounding the air velocity relative to the machine, due to the latter's advance, with that of the side gust, is to produce as an actual resultant a single relative current which arrives from the port or the starboard bow as the case may be. Such a relative current is shown by the arrow in Fig. 4. Imagine yourself looking along that arrow. Obviously you will be looking down the tunnel under the leeward wing and across the tunnel on the windward wing. Fig. 5 is a projection showing the view of

Fig. 5.—Dunne type.

the machine you would obtain. The current is supposed to be blowing straight from your eye towards the picture. Because you are looking down the tunnel at the leeward wing, the outer part of that wing presents in this projection merely a thin line—it practically vanishes.

On the windward wing the situation is reversed. Here you are looking straight across the tunnel, and consequently not only is the amount of wing-surface that is exposed to your view considerable, but also the cambers of the sections along which you are looking are very much deeper than those along which you would look if you viewed the machine from straight ahead.

Obviously the resistance which the windward wing offers to this relative current blowing from your eye to the picture is enormously greater than that offered by the leeward wing. The machine evidently cannot for a moment maintain such an attitude. The windward wing will swing back, and the vanished leeward wing will swing forward, until the machine is facing you, and pointing straight along the air-current. Thus the entire surface forms a great vane, far more powerful, and far quicker acting than anything that could be obtained by the use of a fin at the back of an ordinary

Fig. 6.—Zanonia type.

machine. Obviously sideways motion of more than a moment's duration is impossible; the machine will immediately nose into the new direction of motion. It would take a very violent and very sudden gust indeed to produce even a momentary condition of affairs such as we have pictured. For the instant, the relative wind begins to veer so as to arrive from the port or starboard bow, the machine heads towards it, and brings it back again to the normal straight-ahead condition.

Now turn to Fig. 6. This is a projection of the Zanoniaform showing the same condition of affairs, as regards relative wind, as does Fig. 5. The air-current is blowing straight from your eye to the picture, and striking on the starboard bow of the machine. You will notice that the condition of things in all other respects is completely reversed. Here the upturned windward tip is now in an edge-on position to your eye—that is, to the wind. The upturned leeward tip, which when viewed from the normal front is fore-shortened, now presents its fullest and broadest aspect to your eye—that is, to the current. Evidently the windward wing will advance and the leeward wing will retreat. As a consequence the machine points even more away from the relative wind than before. There is nothing to stop sideways motion; on the contrary, it is encouraged. So we see that with the slightest deviation of the relative current from the exactly-straight-ahead direction, the apparatus will yaw away from it so as to turn broadside-on to it, and if you care to work out the resultants of the normal flight velocity and an accelerating side-component, you will see that the yawing will persist until the apparatus has turned completely round and is heading in the opposite direction.

Now, Nature never persists in the use of a peculiar design unless it pays. Why then does she stick to this obviously erratic-flying Zanoniaform? She should just as easily construct a leaf which would curl after the manner shown in Fig. 4a. The reason is this. Nature's object is to carry the seed as far from the parent tree as possible. The withered leaves are blown off by the first wind that comes along. If they glide down nicely and steadily keeping head to wind, they will evidently land close together somewhere among the roots of the tree. Therefore Nature so designs them that, the instant they commence to glide, they swerve away from the wind, and then glide away down-wind in an erratic, rolling flight which distributes them all over the place and far away from the parent tree.

But now look at one of Nature's designs in a case where effortless balance in high, turbulent winds is her object. Fig. 7 shows the aspect presented by any one of the great sea-birds when viewed slightly from the side as in the other two figures. You will see that the leeward tip vanishes in precisely the same manner as it does in Fig. 5. Once you have noticed this aspect of a sea-bird's wing, it continually forces itself upon your attention.

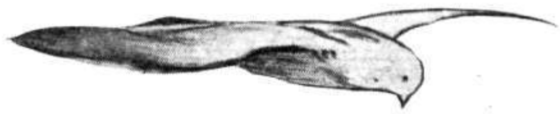

Fig. 7.—Sea-bird.

So much for the "Vanishing-Wing" device. Its effect, be it remembered, is to increase the drift of the more advanced wing and reduce that of the other. Its object is purely directional.

Now let us look into the longitudinal stability. Here we have, to commence with, the ordinary longitudinal "Vee," with negative pressure on the rearmost part. Beyond that we have three other devices. The principle of the longitudinal "Vee" is well known to all of you, and it is not worth while spending much time on it. Briefly, the arrangement of the centre of gravity, and centre of pressure, is as shown in Fig. 8.

M is the mass, N is the negative pressure, by which I mean down-pressure, L is the lift, and P is the resultant of L and N. Of course in normal conditions L, multiplied by its distance from M, equals N, multiplied by its distance from M. Neglecting for the moment what happens to L, it is evident that if the angle of incidence widens, the down-pressure N decreases to nothing, or even changes to an up-pressure, in either case allowing the back of the system to rise and reduce the angle of incidence to normal. While if the angle of incidence narrows, then the back of the system will get increased negative pressure, pressing it down and increasing the angle of incidence until it is again normal. With flat planes the travel of L is such as to assist this action; with curved surfaces its travel is such as to hinder it. So with curved surfaces the negative tail portion of the system has to be made more powerful in its action in order to compensate for the dangerous movements of L, and, in addition, allow a sufficient margin of righting effect.

A constant-angle-of-incidence-machine such as this is, *ipso facto*, a constant speed machine. For if the speed is accidentally reduced, the machine begins to sink: this increases the angle of incidence; P consequently goes back, which makes the machine dive slightly and thus recover its proper speed. While, if the speed is accidentally increased, the machine rises: this reduces the angle of incidence; P consequently goes forward, which makes the machine elevate and slow down to its proper speed.

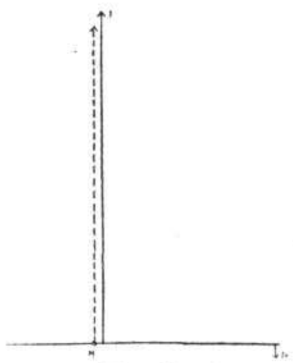

Fig. 8.

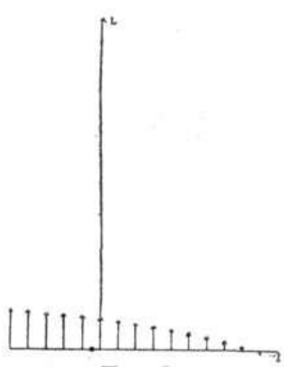

Fig. 9.

Of course all this is ancient history.*

(*To be continued.*)

* My late friend, Captain Ferber, told me that Penaud was the first to explain the stabilising effect of the longitudinal "Vee." But I understand that Penaud acknowledged considerable indebtedness to Sir George Cayley.

BRITISH NOTES OF THE WEEK.

Record British Cross-country Flight.

THE longest cross-country flight in one day in Great Britain was accomplished last Tuesday, when Capt. C. A. H. Longcroft, on a B.E. biplane, flew from Farnborough to Montrose, with but one stop—of 2 hours 10 mins.—at Alnmouth, in Northumberland. Capt. Longcroft was accompanied by Col. Sykes, and his flying time for the 530 miles was 7 hours 40 mins.

No. 2 Squadron R.F.C. for Ireland.

TOWARDS the end of the forthcoming week, No. 2 Squadron of the Royal Flying Corps (Military Wing) will be temporarily transferred from Montrose to Rathbane and Birr, to the south-east of Limerick, in order to take part in the Irish manœuvres from September 11th to 19th. It is hoped that this arrangement will lead to the permanent stationing of a squadron in Ireland.

The Dunne Machine in France.

THE Dunne biplane, flown from Eastchurch to Villacoublay, has had a most favourable reception in France, where it has already become the "Nieuport-Dunne." On the 14th, General Hirschauer, Col. Bouttieaux, and other chief officers of the French Aeronautic Corps made a special visit to Villacoublay in order to witness tests made by Commandant Felix with the machine. So interested were the visitors in the machine that they paid another special visit to Villacoublay two days later in order to see further flying by Commandant Felix.

Paris to London by Lord Carbery.

THE honour of being the first peer to pilot an aeroplane across the Channel has fallen to Lord Carbery, who although he only took his certificate three weeks ago, surprised London on Sunday morning by arriving from Paris on his Morane-Saulnier monoplane. He left Buc at 6 a.m., his monoplane, which was fitted with a Rhone motor and Chauviere propeller, being loaded with a supply of the Paris edition of the *Daily Mail*. He made two stops on the way, one in France and the other in England, and arrived at Hendon shortly after noon. Unfortunately in landing, the tail of the machine struck the ground heavily and was damaged. Lord Carbery's *nom de vol* is M. Cardery.

A Hendon Record.

ON his Wright biplane, the surfaces of which he has just had re-covered, G. W. Beatty, at Hendon on the 14th inst., took up three passengers, Robert Slack and his brother E. Slack and Capt. Tyrer. Several circuits of the aerodrome were made at a height of 500 ft.

Mr. Compton Paterson in the biplane with which he did such good work in South Africa. Observe the double-handed control that is a feature of this machine.

A Blériot for Pupils.

THE Blériot school at Hendon now includes among its equipment a *taxi-pinguin*, or in other words a machine specially built for pupils upon which to take their first lessons. Its wings are only about one-third the proper span, and the propeller is smaller than usual, so that although it is quite useful for rolling practice it will be practically impossible for the impulsive and enthusiastic pupil to get into the air. The chassis is also made stronger than usual in order to stand the strains of being used continually for rolling.

Gordon England a Benedict.

A LITTLE touch of romance was given to the preliminaries for the *Daily Mail* waterplane circuit of Britain by the leaking out of the news that Mr. Gordon-England had been quietly married on June 20th, at Hove, to Miss D. J. Troughton. We tender our congratulations to Mr. and Mrs. England.

More M. Farmans for British Navy.

LAST Saturday two more Maurice Farman seaplanes purchased by the Admiralty were delivered at the Naval Air Station at the Isle of Grain. They are similar to the two delivered a week previously.

Funeral of Mr. Evans.

THERE was a large gathering at the churchyard at Tadley, near Basingstoke, on Wednesday of last week, when the ashes of the late Mr. W. H. B. Evans, who was the passenger with Col. S. F. Cody in his ill-fated flight, were committed to their last resting-place. Among the mourners was Mr. Leon Cody, while the floral tributes included a wreath sent by Mrs. Cody and family.

An Aerial Drama Film.

To his accomplishments as an organist and an aviator, Mr. W. H. Ewen has added that of a cinema actor, and those who see the film, entitled "Through the Clouds," will agree that Mr. Ewen plays his part well. A private view of the film was given last Monday at the offices of the B. and C. Film Co., of 33, Endell Street, Long Acre, and although it is not necessary to give away the whole plot, it may be said that a detective who is gagged and bound in the basket of a balloon, is rescued by his daughter, who after giving chase in an aeroplane is seen climbing up a rope from the aeroplane to the balloon. The whole affair was splendidly stage managed, so that although as a matter of fact the machine was on the ground when the heroine climbed out, the pictures are most realistic. In addition to Ewen's Caudron, Verrier's M. Farman also took part in the play. The film should meet with a good reception, and we can advise our readers to make a point of seeing it. The B. and C. Co. issued an invitation to all aviators to view the film at their offices at 7 p.m. on Friday, 22nd inst.

British-built A.D. Engines.

THERE are rumours afloat to the effect that the Austro-Daimler aviation engine will shortly be built in Great Britain, and we hope to have more definite information for our readers at an early date.

New Zealand's First Aeroplane.

THE Blériot aeroplane, "Britannia," on which Hamel flew with a passenger from Dover to Cologne, and which was subsequently presented to the New Zealand Government by the Imperial Air Fleet Committee, left London last week on board the Athenic, and is due to arrive in New Zealand on September 30th.

Aviation in South Africa.

UNDER the direction of Mr. Compton Paterson an aviation school has been established at Kimberley, and the first class of defence force officers were to have commenced their training on Monday.

An Aviation Corps has also been formed with headquarters at Pretoria. It has started with four officers.

The Round Berlin Race.

FOR the Round Berlin race which is to be held on Saturday and Sunday next, thirty entries have been received. Starting from Johannisthal, the course goes by Klarahoehe, near Lindenburg, to the Schulzendorf aerodrome, to the Bornstedt garrison, round the dirigible station at Potsdam and back to Johannisthal, a distance of 137 miles. On the first day one round will be made, while the competitors will have to go round twice on the second day. The prize list totals £5,000. Among the contributors being the Home Secretary, £500; War Minister, £500; National Fund, £750; Berlin City Council, £600.

BUSY BROOKLANDS.

WITHIN the next couple of weeks some very interesting machines will make their appearance at Brooklands. Without reference to the merit of the other machines, I think that the appearance of the De Bolotoff biplane is anticipated most keenly, mainly due to the fact that it is so different to what one is accustomed to regard as more or less orthodox design. It is finished, and ready to go out as soon as the propeller shaft, which has been ordered from Krupp's, arrives. As this has been made of a special steel of M. De Bolotoff's specification, and as he does not wish to put any other material than that for which it was designed into the machine, progress has naturally been somewhat retarded, but it is hoped that everything will be ready in about a week. Great curiosity is displayed as to who will pilot the machine in her preliminary tests, but at present nothing definite has transpired.

The Parsons biplane, which, it will be remembered, was slightly damaged the other day owing to the failure of one of the *ailerons*, has been repaired, and will soon be flying again. Driven by a 70 h.p. Gnome, this machine climbs like a rocket, and it is little wonder when one considers that the machine flew, and flew well, with a 40 h.p. car engine.

The fitting of a 70 h.p. Gnome has furnished it with such a surplus of power, that the Parsons paddle wheel stabilizer will now be given a fair trial, whilst it could hardly be said to have had with the heavier low-powered engine.

In the Flanders shed I found Mr. Dunkinfield Jones busy putting the finishing touches to the Flanders biplane, which has been re-covered and now flies very well indeed. On this occasion she was minus the engine—one of the new 60 h.p. Isaacson radial engines—which had been sent back to the makers for some slight adjustments. I understand from Mr. Jones that this engine is now extremely satisfactory, and develops the full rated horse power. It is good news to hear that Mr. Howard Flanders—who is at present in Devon recuperating after his motor-cycle accident—is progressing satisfactorily, although it will probably be some considerable time yet before he will be strong enough to resume his work.

In the Vickers and Bristol sheds everyone was busy overhauling engines and machines to have them in good trim for the enormous amount of school work done at these two schools.

With Hawker away on the Race Round Britain, there naturally was nothing doing in the Sopwith sheds, where the two 80 h.p. tractors were having a rest in the meantime.

A very interesting new-comer at Brooklands is the Champel biplane, for which Messrs. Ducrocq and Lawford are agents.

Of this interesting machine, which superficially is somewhat on H. Farman lines, but aerodynamically quite different, we hope to have something more to say shortly.

Messrs. Martin and Handasyde have just completed a new monoplane similar to the one Gordon Bell was flying. The 120 h.p. Austro-Daimler engine with which this machine will be fitted is at present undergoing repairs, and as soon as these are completed the machine will be flying. Later she will be used as a waterplane, and as the turning her into a waterplane only involves the substitution of floats for wheels, we may expect to see a new addition to the list of British waterplane constructors very shortly. The machine will be fitted with a large single central float, designed and built by Messrs. Martin and Handasyde. Two smaller floats of the same make will be fitted to the king posts of the wings.

I came away from the aerodrome with the impression that Brooklands will be well worth watching during the weeks to come.

C. M. P.

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FLYING OVER CROWDS— WHEN WILL PILOTS STOP IT?

[OVER and over again has the Royal Aero Club made known its strong disapproval of flying over crowds, and time after time have we supported their attitude with many arguments of justification, yet we still continue to receive communications upon the continuance of the practice. Perhaps the following very human document from a reader of FLIGHT who, having consulted us as to the *bona fides* of a certain pilot, was responsible for his engagement for an exhibition flight, will really bring home to pilots themselves that this feature of their otherwise excellent performances is really unwelcomed by those for whom it is done.—ED.]

To the Editor of FLIGHT.

SIR,—You will remember me speaking to you about a pilot for a demonstration. Well, he came here, and gave us a very good show indeed. He is a good sportsman, and, in spite of its being very cold flying, he gave us good flights for the money. There is a point, however, which I think you might take up, and that is the undesirability of a man flying over a crowd of people. He did this two or three times here, swooping down towards the people, and then rising again.

As regards the actual risk, I daresay there was not a great deal; though it seemed to me that if his engine had failed at a critical time he had very little margin indeed, and a fall into the crowd with the propeller still revolving would have taxed the capacity of the hospital in whose aid the fête at which he appeared was organised.

More important, however, is the fact that he frightened people a great deal. At these country shows no one knows how much control a man has over his machine, and many thought he was really going to fail among them, and were badly frightened. One woman was seen to lay her baby on the ground and kneel down and bend over it so as to save it as much as possible. Now this is not an easily frightened fool, but a brave woman, who thought quite clearly and quickly the best thing for her child, and was quite prepared to sacrifice herself for it.

Other people left the ground and would not return, and many of my farmer friends, who are sound level-headed men, asked me afterwards whether I thought it safe, as they objected to it.

It may be great fun to frighten a crowd and then swoop off, but even if there is no danger, the actual frightening may do a lot of harm. All sorts come to a country show, and a fright might easily cause a crush in which someone might be hurt. Country people do not see flying every day, like you do in London, and if they are to see it at all they have to come on the one day, whether it is the best time or not. Consequently there are all sorts in the crowd, women carrying babies in arms (and otherwise), and tiny children on foot, who might easily get trodden on.

Further, it does not do the aviation movement any good. If he had made his swoops over the field *in front* of the people where he could be seen by all the whole time, it would have shown his power over his machine better, and the people would better have understood his ability. There would be no possibility of anyone thinking that he had made a mistake or was nearly coming down involuntarily.

Another small point which all airmen might attend to is to keep their *own* people off the reserved ground. You cannot at a place like this have the reserved part railed off by permanent railings, and all we could do was to have a roped space and clear it when he flew. It is fairly easy to clear it, but the difficulty is to keep it clear till he has landed. I was acting policeman, and walking up and down the line for a quarter of an hour at a time for each flight, &c., is quite hard work. One explains to the crowd that he may want to land on *any* part of the enclosure at *any* time without notice in a hurry, but if they see his own party wandering vaguely about they cannot see why they should not do so too. I don't mean his mechanic and others who have business, but ladies of his party, relations and friends. A pilot would help the organisers of such a meeting as this very much if he gave all his friends the tip to keep *absolutely* off the course and behind the ropes *all* the time he is flying.

This latter point is perhaps less important than the question of flying over a crowd, but it should receive attention. I am sure our pilot for the day is far too good a chap to want to do harm for the sake of sensation, or to degrade flying into mere sensationalism, and if this letter can help him and other pilots to recognise the situation in its true colours, it will not have been written in vain.

"A LOCAL HELPER."

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Searchlights for Aircraft.

BOTH at home and in Germany the military authorities are testing new devices for illuminating areas from aircraft without the position of the latter being disclosed. The invention, which is being tried at Farnborough by the Royal Flying Corps, is the work of Herr Louis Muller, of Vienna, and consists of a little parachute carrying a box, which, when it is tipped overboard, lights up and illuminates a large area. In Germany the experiments are being conducted with electric lights suspended below an airship. In one test, when the airship was 1,200 metres high, the lamp was dropped 700 metres before the light was switched on.

FOREIGN AVIATION NEWS.

New Blériot Superior Pilots.

ON the 13th inst., Sergt. Venson and Sapper Chevreau each made one test for a superior certificate over a course from Pau on Blériot-Gnome machines.

Cross-country on a Farman.

ACCOMPANIED by his mechanic, Lieut. Pelletier, on his H. Farman, on the 13th inst. went from Chalons Camp to Dijon, and later continued his journey to Lyon.

Etampes to Biarritz on a Blériot.

ON his Blériot-Gnome, Baron Pasquier, on the 14th inst., started from Etampes at 11.30 a.m., and during the evening arrived safely at Bordeaux, having stopped on the way at Chatellerault and Libourne.

Seguin's Return to Paris.

AFTER his flight from Biarritz to Bremen, as recorded in our last issue, Seguin, on his H. Farman-Gnome, on the 15th inst., flew on to the St. Job aerodrome at Antwerp, from which point he returned to Buc on Saturday in three hours and a half.

For the Pommery Cup.

ON the 12th inst., Marnier, on a Nieuport, set out from Villacoublay and after a splendid flight of 420 kiloms. landed at Aix-la-Chapelle. In making a restart after half an hour's rest, his petrol tank gave trouble and he was obliged to give up. He returned to Paris on Saturday, making a non-stop flight of 3 hrs. 50 mins. On the 12th inst., Letort, on a Morane, also set out from Villacoublay, but after flying a short distance decided that the conditions were unfavourable and returned to his starting point.

A Good Trip on a Morane.

A NON-STOP flight of about 220 kiloms., from Villacoublay to Chatillon-sur-Seine, was made by Biot in 1 hr. 40 mins. on the 15th inst. He was piloting a Morane-Saulnier monoplane with 60 h.p. Rhone motor.

Touring on a M. Farman.

ON the M. Farman, on which on Monday week he had made the trip from Deauville to Buc, piloted by his friend the Marquis de Larienty Tholozan, Comte de la Riboisiene made the return journey to Deauville later on the same day, with Minier as the pilot.

Brindejonc Flies to Dinard.

HAVING completed his engagement at Marseilles, Brindejonc des Moulinais set out on the 13th to fly to Dinard by stages. There was a stiff north-east wind blowing, and after flying for two hours Brindejonc, on arriving at Montpellier, decided to stop. Two days later he set out again and in four hours reached Montauban, having stopped at Albi to take in petrol. In the afternoon further progress was made, the Morane-Rhone arriving at Angouleme and Poitiers in turn. The journey was completed on Saturday, and during the afternoon Brindejonc gave a series of exhibition flights over the sands.

A Caudron in the South of France.

MAICON, on his Caudron-Gnome biplane, on Monday flew from Alassio, in Italy, to Nice, making good time over the distance of 150 kiloms., although it rained heavily throughout the trip.

250 kiloms. in 2½ Hours.

AT the Nieuport school at Villacoublay, on Monday, de Neufville arrived from Houlgate, having covered the distance of 250 kiloms. *via* Lisieux and Evreux in 2½ hours.

Levasseur Reaches Paris.

AFTER his involuntary dip in the sea at Benck, as mentioned in last week's FLIGHT, Levasseur set about getting his Nieuport hydro-monoplane into flying order again. On the 12th he restarted, with his passenger Rougerie, for Paris, and flying by way of Dieppe, Fecamp and Havre, they completed the day's work at Rouen. From there they went on the following morning along the Seine, and eventually landed at Issy, having covered about 12,000 kiloms. in two months.

A Fatality at Leipzig.

WHILE an aeroplane was being flown by Rempler at Leipzig aerodrome on the 15th inst., it was caught by a gust of wind when at a height of 10 metres and capsized. The pilot escaped with a very severe bruising, but the passenger, an engineer named Rutgers, was crushed by the motor and sustained injuries which proved fatal.

Good Cross-country Flights in Germany.

ON the 12th inst. Lieut. Koch on a biplane flew from Mulhausen to Wegstadt in Bohemia, a distance of 600 kiloms., while on the following morning Stoeffen with Capt. Berthold went from Johannisthal to Gotha in 3½ hours.

A Tour of Germany.

LIEUT. SCHOLZ and Lieut Teubern, who are making an aerial tour of Germany, having flown from Koenigsburg to Berlin and Hamburg on the 14th inst., made for Metz. They were forced to land at Celle, near Hanover, on account of the wind, but afterwards went on to Munster, and the next day they reached Cologne.

Mr. and Mrs. Jas. V. Martin "Farthest North."

MR. MARTIN, writing from Fairbanks, Alaska, under date July 8th, sends us some photographs of the interested crowds and his flying up yonder. His letter runs as follows:—"I enclose herein views of the 'Farthest North' in aeroplaning, at least on this side of the globe. The first flights were made at night, the large pictures with the sun in the background, 10.30 p.m. (not midnight). In order to get to Fairbanks the aeroplane crossed and recrossed the Arctic circle.

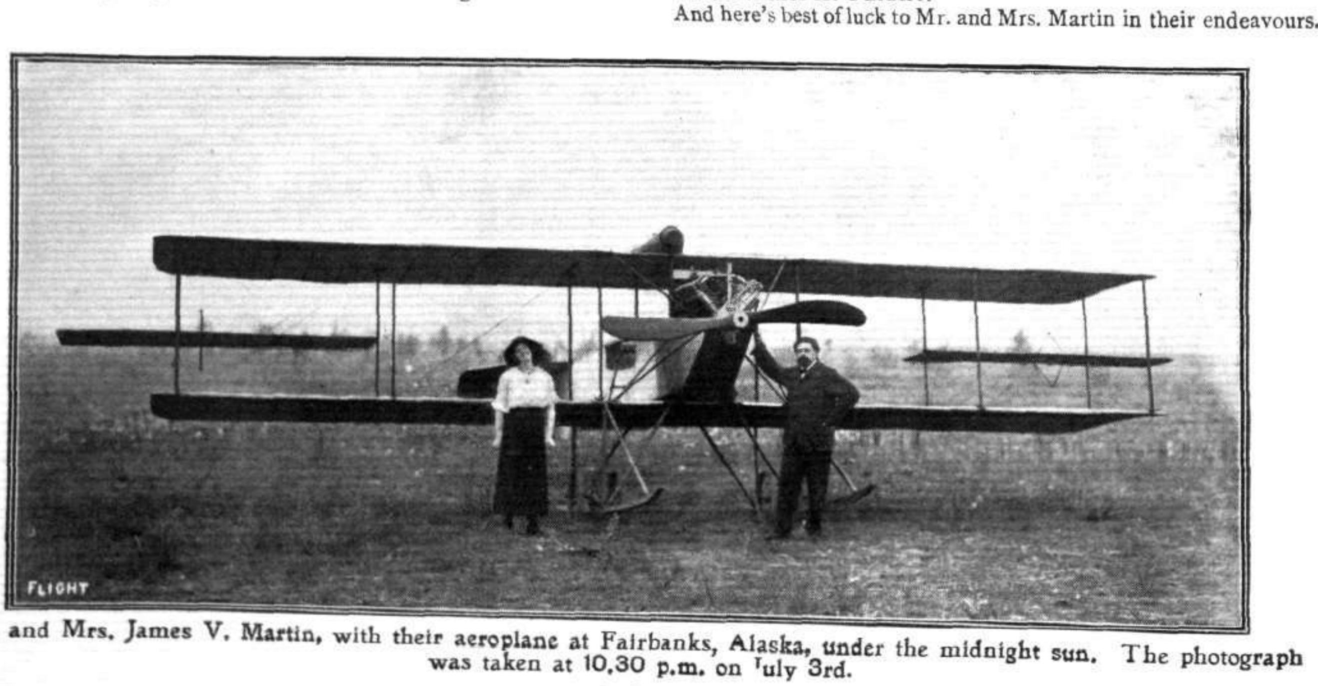
"I am exhibiting in order to raise funds for the Trans-Atlantic flight. You will remember that in December, 1911, I started the present agitation, and I expect to begin the construction of my machine in England some time this coming winter.

"I wish all my English friends to boost for me, as I shall conduct the flight as England's in every respect.

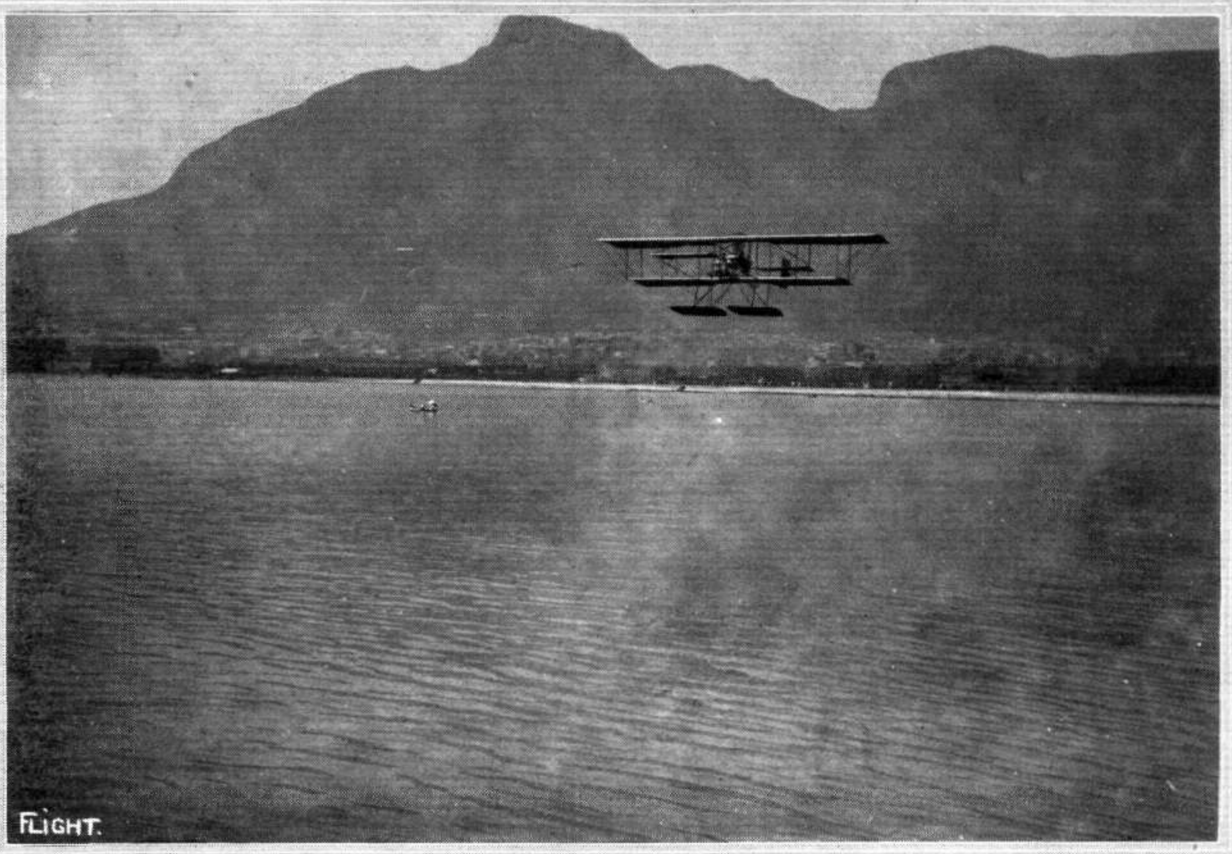
"My wife, Miss Irvine, will fly with me.

"Best wishes for FLIGHT."

And here's best of luck to Mr. and Mrs. Martin in their endeavours.



Mr. and Mrs. James V. Martin, with their aeroplane at Fairbanks, Alaska, under the midnight sun. The photograph was taken at 10.30 p.m. on July 3rd.



Mr. Compton Paterson on his hydro-biplane flying over Table Bay with Table Mountain in the background.

More Seaplanes for German Navy.

IT is announced from Berlin that the German naval authorities have placed orders for fifty seaplanes to be distributed between Wilhelmshaven and Heligoland in the North Sea and Warnemunde, Kiel and Putzig in the Baltic. They are to be delivered by January next.

Chevillard in Italy.

HAVING fulfilled his engagement in Denmark, Chevillard has gone to Italy in order to deliver some H. Farmans to the military authorities at Turin and Milan. From August 28th to September 4th he will be giving exhibition flights at Enghein, and from there will go to Stockholm.

Flying Over the Baltic.

ON an Albatross hydro-aeroplane, Vollmuller on Saturday started from Holtenau with the intention of flying 600 kiloms. over the Baltic. On account of bad weather, however, he was obliged to land at Swinemunde after covering 310 kiloms.

Janoir in Russia.

CONTINUING his journey from Paris, which was recorded in our last issue, Janoir on his Deperdussin-Gnome started from Riga to fly to St. Petersburg. He was obliged to land, however, at Beresovo, about 250 kiloms. from the Russian capital, and in coming down damaged the chassis of the machine, so that further progress was delayed until Monday, when he arrived in St. Petersburg.

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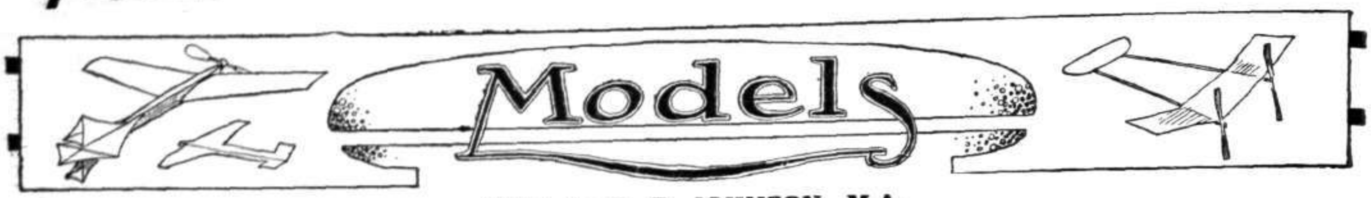
ENTRANTS FOR THE DEAUVILLE WATERPLANE MEETING, AUGUST 24th–31st.

No.	Machine.	Pilot.	Span.	Length.	Surface.	Lateral Control.	Floats.	Weight. Light.	Weight. Working.	Speed.	Motor.		No. of Cyls.
			ft.	ft.	sq. ft.			lbs.	lbs.	m.p.h.	h.p.		
1	M. Farman ...	... Renaux	62	29·5	538	A	3	1320	1870	62	120	Renault ...	8
2	,,	... Gaubert	62	29·5	538	A	3	1320	1870	62	120	Salmson ...	9
3	*Nieuport ...	... Weymann	40	28·5	172	W	3	1320	1870	75	160	Gnome ...	14
4	* ,, ...	... Levasseur	40	28·5	172	W	3	1320	1870	75	160	,, ...	14
5	Caudron ...	... R. Caudron ...	46 (34)	29	388	—	2	1158	1850	75	100	Anzani ...	10
6	,, ...	... G. Caudron ...	59 (39)	33	495	—	2	1540	2640	75	200	,, ...	20
7	*Bathiat ...	... Rugere	44	—	452	A	3	990	1540	68	160	Gnome ...	14
8	Breguet ...	... Moineau	51	32	485	W	3	2200	3190	71	200	Salmson ...	14
9	,, ...	... De Montalent ...	51	32	485	W	3	2200	3190	71	200	,, ...	14
10	Deperdussin	... Prevost	49	33	377	W	3	2640	3300	68	200	Gnome ...	18
11	* ,,	... Janoir	44	28	302	W	3	1870	2420	75	100	,, ...	9
12	*Borel ...	... G. Chemet ...	59	27	113	W	3	770	1390	62	80	,, ...	7
13	Dussot ...	... A. Dussot... ...	44	—	—	W	—	—	—	—	100	Anzani ...	10
14	Astra ...	... De Lambert ...	52·5	39·3	129	W	2	—	—	68	160	Gnome ...	14
15	*Leveque ...	... Molla	—	—	—	—	—	—	—	—			

Of the above, those marked with an asterisk (*) are also entered for the race from Paris to Deauville, together with the following :—

Machine.	Pilot.	Span.	Length.	Surface.	Lateral Control.	Floats.	Light.	Working.	Speed.	h.p.	Motor.	No. of Cyls.
Deperdussin ...	Prevost	44	29·5	302	W	3	2100	2980	68	160	Gnome ...	14
,, ...	Dev. Scoffier ...	41	28	269	W	3	1435	1990	75	80	,, ...	7
Breguet	Bregi	44	32	485	W	2	1990	2700	68	120	Salmson ...	9
Borel-Denhaut ...	Divetain	33 (21)	24	215	W	B	770	1200	85	50	Gnome ...	7

Notes.—A = ailerons. W = warping. B = boat



Edited by V. E. JOHNSON, M.A.

Whirling Table Experiments.

As already stated in a recent issue, the writer, rather more than twenty years ago, constructed a whirling table driven by hand power only, which was capable of driving model bodies of fair size through the air up to a speed of about 45 m.p.h. In the following description I am compelled to rely on memory only; the actual dimensions must, therefore, be regarded as approximate only.

Four pieces of pitch pine, 2 in. sq. section, 6 ft. 6 ins. long, were taken, one of their ends pointed and driven upright some 2 ft. into the ground, forming the corners of a rectangle 3 ft. by 4 ft. Four more pieces were taken and bolted to the tops of these uprights, two by two, forming the sides of a horizontal rectangle 4 ft. by 3 ft. Across the centre of the longer sides of this rectangle was again bolted a single piece of pitch pine 3 ft. long, 2 ins. deep, and 3 ins. broad. Through the centre of this piece was drilled a hole about an inch in diameter, which carried the cone-shaped brass bearing in which the vertical steel spindle which carried the arm rotated. This spindle (tapered slightly to fit the coned brass bearing) was about half an inch thick and 4 ins. long, and had a $\frac{3}{16}$ in. hole drilled right through it, down which a wire or thin cord could pass quite freely. To the top of this spindle was fastened an iron bar about a foot long and drilled with several holes, to which the long wooden arm, &c., could be easily fastened. The actual arm carrying the apparatus to be tested was a 10 ft. lath with pointed front and rear edges to enable it to cut through the air. Its exact dimensions I cannot remember, but probably they were 1·5 in. by 0·5 in.

The other arm was a thin iron bar some $3\frac{1}{2}$ ft. long, weighted at its extremities. It was fastened to the horizontal portion of the rotating spindle in such a manner as to project in an opposite direction to the wooden lath, and balance it and the apparatus it carried. This latter was accomplished by sliding the weight to and fro along the bar. A cross or transverse light bar of iron piping 3 ft. long was fastened to the rotating portion of the apparatus at its centre and at right-angles to the wooden and iron arms. From the extremities of this piece of piping two struts (I cannot remember whether these were of wood or metal, but I think the former), 4 ft. long, were taken up so as to form an inverted V meeting over the centre, and from the top were carried stay piano wires to the extremities of the wooden and iron arms, and also to intermediate portions of the former. The long wooden arm was further stiffened by a vertical king-post and wires below, and prevented from bending back by means of stay wires carried from the extremities of the cross-bar of iron piping. The entire rotating arm and its adjuncts were very light and strong. A strong wooden pulley was fastened to a thick brass plate, which was keyed on to the lower extremity of the spindle, and was driven by a band from another pulley of the same diameter. These two pulleys were interchangeable, and the rotating arm could be revolved direct, without the intervention of the driving belt when desired. The handle, which was fastened to the driving pulley, turned freely on a concentric bearing, and a spring balance was fitted to the pulley and freely-turning handle to serve as a sort of rough dynamometer, with a view to ascertaining the power expended. The driving pulley rotated in a horizontal plane, and in consequence was somewhat awkward to rotate, and one's power could have been more efficiently expended had bevel-gearing been provided, so that the rotational plane of the driving pulley was in a vertical plane. Yet in spite of this the extremity of the arm could be rotated up to a velocity of one rotation in less than a second. When moving at this velocity, the lath and wires "whistled" through the air, and until one became used to it, it was a good test of nerve power to stand just out of reach of the extremity of the arm, shut one's eyes, and then suddenly open them just as the arm was approaching you; the impulse to step back was almost irresistible.

I should perhaps state that the above whirling table was the second which I had constructed, the former, in which the long arm was composed of iron tubing, was a far heavier and clumsier affair. In this apparatus, although two persons could drive it by means of a double handle working in a vertical plane on the same spindle, a speed of 30 to 35 m.p.h. was the limit. As a matter of fact, the latter affair weighed about as many stone as the former did pounds.

With such a piece of apparatus a great variety of experiments can be made, especially on head resistance, etc.

Obviously, the greater the diameter of the revolving arm, the less the curvature of path followed by the "whirled" body. In some respects, provided this curvature be not too great, this resultant side wind may be a truer approximation to the real state of affairs than the ideal wind of the wind tunnel. When an aeroplane is travelling through the air, the *relative* wind is only truly opposite to the travel of the machine when the latter's motion is directly head on to the wind or directly with it.

There is, of course, the tendency which all bodies following a constrained curved path have to fly off at a tangent to be carefully allowed for, and the whirling table, like any other piece of apparatus, has its limitations and its drawbacks; but the ease and cheapness with which it can be constructed, and the varied nature of the experiments which can be carried out with it, render it an excellent introductory medium to the science of aviation.

Mr. G. H. Kilshaw writes: "I am just commencing a large whirling arm nearly 10 ft. long [10 ft. diam. or rad., the former is far preferable]. It will be driven by foot power, and my first experiments will be dihedral and incidence angles and their relation to stability."

The Hendon Aerodrome Model Competition.

The above competition for r.o.g. or self-launching models was held on August 13th under decidedly adverse atmospherical conditions, nevertheless some really remarkable results were accomplished. The winner, Mr. A. Cannell, succeeded in making a flight of 95 secs. duration, and 1,347 ft. 9 ins. distance, the model flying well and high, still climbing to all appearance to well over a minute, the glide to earth occupied some 25 secs. Mr. Cannell's two other flights were 84 secs. and 862 ft. and 85 secs. and 1,118 ft., so there was nothing in the nature of a fluke in the performance The model was of the loaded elevator type; total weight of model, $4\frac{17}{32}$ ozs.; weight of rubber motor, $1\frac{9}{32}$ ozs. Mr. C. C. Dutton accomplished 81 secs. (duration) and 1,122 ft. (distance); weight of complete model, $4\frac{5}{8}$ ozs.; weight of rubber motor, $1\frac{1}{4}$ ozs. Mr. H. F. Houlberg, 85 secs. (duration) and 1,135 ft. 9 ins. (distance); complete weight of model, $7\frac{3}{4}$ ozs.; weight of rubber motor, $2\frac{17}{32}$ ozs. Mr. L. H. Slatter, 60 secs. (duration) and 1,109 ft. (distance); complete weight of model, $5\frac{3}{8}$ ozs.; rubber motor, $1\frac{5}{16}$ ozs. Mr. H. C. Bond, 60 secs. and 1,238 ft. 6 ins.; complete weight of model, $5\frac{3}{4}$ ozs.; weight of rubber motor, 2 ozs. Mr. P. G. Cox, using a model total weight $10\frac{3}{8}$ ozs., and rubber motor $1\frac{15}{16}$ ozs., made a duration of 19 secs. and a distance of 537 ft. Mr. G. P. Bragg-Smith, 41 secs. and 977 ft. 9 ins.; complete weight of model, $7\frac{1}{4}$ ozs.; weight of rubber motor, $2\frac{1}{16}$ ozs.

The foregoing items will no doubt prove of especial interest to many aeromodellists whose "records" have not yet reached so advanced a stage.

Query *re* Kites.

A correspondent writes: "I should be obliged if you would tell me if there is any danger in using wire for kite flying. If there is any, could you tell me what it is and how it can be prevented?" Will some expert "kitist" kindly oblige and reply?

A Liverpool Scientific Club for Models.

Mr. G. H. Kilshaw (62, Cedar Grove, Lodge Lane, Liverpool), writes us as follows: "Having been approached by a couple of Liverpool gentlemen, including Mr. A. G. Pugh, organizer of the 'Liverpool Volunteer Flying Corps,' regarding the formation of a scientific model aero society, I shall be pleased to hear from anyone in Liverpool and district who may be interested.

"It is necessary, however, that the above society should receive unstinted support, and that instead of 'wait and see' all local enthusiasts should respond to this appeal *at once*.

"The club will be composed of a section for ordinary model flying, and a section for the 'scientific study of models and apparatus for experiments.'"

Mr. G. H. Kilshaw's Challenge.

The same correspondent in another communication says: "A few of your correspondents who have communicated with respect to the doings of 'scientifics,' seem to be of the opinion that they have had no experience or success with flying-sticks or record-breakers, and I feel it is only right to offer some defence. I myself have been a follower of model aeroplaning since 1909, and fully three years of this was spent on flying sticks, &c., and have frequently obtained over 60 secs. duration: thus I can at least claim to know something about them. I am quite willing to compete against any local talent with either single or twin propeller duration models, and I hope that some one will come forward and accept this challenge."

What is a Flying Stick?

In his communication, Mr. Kilshaw makes use of this term—a very old one, by the way. In a sense, he appears to give us a definition by using the expression "flying-sticks or record-breakers." According to this view, then, record-breaking machines are flying-sticks. The official records of the K. and M.A.A. are or might be held by flying sticks, and their duration competitions are won by machines of the same type and so on.

We take this opportunity of bringing this matter to the fore, because we consider the time has come when either the term should be absolutely barred, or some hard and fast definition given of the term. Personally, we think the term a very unfortunate one. It is a term which has been in constant use, *orally* at any rate; and the loose and careless way in which it has been employed has done great harm to model aviation. We are not at all sure that it has not done more to discourage novices than any other cause. A certain opprobrium is, we suppose, considered to be attached to the term; though we must confess we quite fail to see why this should be so.

Personally, the writer would prefer the term barred altogether. Unless, of course, some reader can give a definition of the same which has some likelihood of being generally accepted. We shall be glad to hear what our readers have to say.

Model Club for Richmond.

Mr. J. B. Lucas (19, Manor Road, Richmond, Surrey) is desirous of forming a model and gliding club in that district, and would be pleased to hear from anyone willing to join.

Model Club for Bedford.

Mr. T. S. Williams (22, Park Avenue, Bedford), who is endeavouring, with the assistance of a few friends, to form a model club in that district, will be glad to hear from anyone interested in model aviation with a view to the above.

Replies to Queries.

T. S. W.—Messrs. S. Summerfield's address is: Aeronautical Engineers, Melton Mowbray.

"Referring to a correspondent's query in a recent issue," writes Mr. N. Monteiro, "I have the following to say: I have just finished a r.o.g. tractor monoplane, 20 ins. span and 24 ins. *fuselage*, area of supporting surfaces 119 sq. ins.—Total weight $2\frac{1}{4}$ ozs.

"The model is driven by 8 strands of rubber $\frac{1}{8}$ in. strip (weighing $\frac{3}{8}$ of an ounce), the tractor screw is $8\frac{1}{4}$ ins. in diameter and 10·5 ins. pitch. The model rises in 3 ft. and flies for about 25 secs. at a good height, but I hope to obtain a better duration as I have only had it out once, in a gusty wind."

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KITE AND MODEL AEROPLANE ASSOCIATION

Official Notices.

British Model Records.

Hand-launched	Distance	R. Lucas	590 yards.
	Duration	J. E. Louch	100 secs.
Off ground	Distance	L. H. Slatter	365 yards.
	Duration	A. F. Houlberg / J. E. Louch	80 secs.
Hydro, off water	Duration	L. H. Slatter	45 secs.
Single-tractor screw, hand-launched	Distance	F. G. Hindsley	173 yards.
	Duration	J. E. Louch	68 secs.
Do., off ground	Distance	L. G. Tucker	148 yards.
	Duration	J. E. Louch	45 secs.

Cody Memorial.—With the approval of our late Councillor S. F. Cody's family, the first kite squadron will be called "The Cody War Squadron," and Leon Cody will take his father's place on its committee. There could not be a more fitting memorial than this to him who made his name famous throughout the world. It is hoped that all will rally round and subscribe towards this lasting memorial. The Press have been asked to open a subscription list. Will any reader who is willing to help by forming a local committee to raise the sum needed write the hon. sec. for full details? As readers know, the late Col. Cody lectured on its behalf, and also made an appeal, and no one felt it more than he did that England would not respond. What was impossible during his life let us make possible now by raising a memorial and by placing this the land of our birth first in this branch of aviation. All donations should be made payable to "The Cody Memorial Squadron," London County and Westminster Bank. Will any admirer send a cheque for the whole sum?

Competitions.—The model competition for the London Aerodrome Challenge Trophy took place at the London Aerodrome, Hendon, on Wednesday, 13th. There were 20 competitors, and was keenly contested, being flown on the efficiency formula. Mr. V. E. Johnson, M.A., in the absence of the hon. sec., was in charge of the meeting, and he was assisted in the judging by Capt. Tyrer, Messrs. F. T. Pringuer, and H. W. Brown. The results were as follows:—1st, A. Cannell, Paddington; 2nd, C. C. Dutton, Paddington; 3rd, A. F. Houlberg, K. and M.A.A.; 4th, L. H. Slatter, K. and M.A.A.; 5th, H. G. Bond, N.E. London; 6th, J. E. Louch, N.E. London. The results were unable to be announced on the day on account of the amount of calculation entailed. Mr. Cannell holds the London Aerodrome Challenge Trophy, and won the silver plaque presented by Mr. C. Grahame-White. Mr. C. C. Dutton won the silver medal of the Association; Mr. A. F. Houlberg the bronze medal.

The Wakefield Competition.—This competition for the Wakefield Gold Cup was held on Saturday, 16th, on the 100-Acre Field, Greenford. There were 21 competitors, who saw some record flying. The results were as follows:—1st, L. H. Slatter, K. and M.A.A., 173 marks; 2nd, A. F. Houlberg, K. and M.A.A., 117; 3rd, C. C. Dutton and A. Cannell, Paddington, tie, with 105; 4th, H. G. Bond, N.E. London, 75; 5th, F. G. Hindsley, A.M.A., 71; 6th, D. Laing and F. W. Jannaway, Wimbledon, tie, with 64. Mr. Slatter did the splendid performance of $135\frac{4}{5}$ secs. off-ground with his $8\frac{1}{4}$-oz. model. An application has been made for this to be accepted as an official record, and will be considered at next Council Meeting. He easily won Sir Charles Wakefield's gold cup and gold medal, Mr. Houlberg taking the silver, and Mr. C. C. Dutton, the bronze medal of the Association. The hon. sec. acted as judge, and was ably assisted by Messrs. Chown and Cannell as timekeepers. Mr. Akehurst, in presenting the prizes on behalf of Sir Charles Wakefield, who was unable to be present, said that Sir Charles would be pleased to hear that his competition had been such a success. He was asked to convey to Sir Charles the thanks of the competitors for the interest he has shown in the Association.

Competition.—Entries for the Michelin Competition close to-day, Saturday, 23rd.

The ornithopter competition for Major Baden-Powell's prize and the Trollope competition for kites take place this afternoon, on the Plain, Wimbledon side of Windmill, at 3 o'clock.

27, Victory Road, Wimbledon. W. H. AKEHURST, Hon. Sec.

AFFILIATED MODEL CLUBS DIARY.

CLUB reports of chief work done will be published monthly for the future. Secretaries' reports, to be included, must reach the Editor on the last Monday in each month.

Aero-Models Assoc. (N. Branch) (25, CHURCH CRESCENT, MUSWELL HILL, N.).

AUG. 23RD, monthly competition r.o.g. duration. Aug. 30th, official record trials.

Paddington and Districts (77, SWINDERBY ROAD, WEMBLEY).

AUG. 23RD, hand-launched duration handicap at Sudbury. Three prizes.

Wimbledon and District (165, HOLLAND ROAD, W.).

AUG. 23RD AND 24TH, flying as usual.

UNAFFILIATED CLUB.

S. Eastern Model Ae.C. (1, RAILWAY APPROACH, BROCKLEY).

AUG. 23RD, Kidbrooke, 2.30 to 5.30 p.m., and Woolwich Common, 4.30 to 6.30 p.m.; Aug. 24th, Blackheath, 7.30 to 10 a.m., Lee Aerodrome, 10.30 a.m. to 12.30 p.m., Mitcham, 2.30 to 5.30 p.m. The second round of the South Eastern Trophy competition will be flown at Kidbrooke on Aug. 30th. The rules appeared in these columns on the 26th ult., and in the *Kentish Mercury*, on July 18th. To obtain the 5 per cent. allowance entry forms must be received by the 28th inst.

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CORRESPONDENCE.

Aviators' Certificates.

[1775] In your issue of the 9th inst., under "Important Decisions at F.A.I. Meeting," dealing with aviators' certificates, you gave the altitude to be accomplished in the tests after January 1st next as 1,000 metres. This, however, is incorrect, the altitude test was only increased to 100 metres.

HAROLD E. PERRIN,

August 20th, 1913. Secretary, Royal Aero Club.

[We regret the above slip, which was due to a typographical error.—ED.]

The Cody Accident.

[1776] Many descriptions have been given of the late Colonel Cody's unfortunate accident, and they mostly agree in their disagreement. Parts only of these stories coincide. Hence it is difficult to arrive at a conclusion as to what did happen, and for that reason I am writing you this letter.

In the two following extracts, it would appear, lies the secret of the matter:—

"'At twenty-five minutes to eleven Colonel Cody was making for his own hangar, still flying high. He vol-planed down, and he must have done it far too sharply, for suddenly I saw the left lower plane flicker up—like that.'

"The speaker illustrated his movement with an upward jerk of the hand.

"'I knew it was all up,' continued Harrison. 'The struts had snapped, and nothing could save Colonel Cody and his passenger. They were still three hundred feet or more from the earth.'"—*Daily Express.*

"This is what the two saw: The planes of the great machine, outlined clearly against a small cluster of trees, shoot upwards. It was like a drowning man throwing up his arms. The waterplane had broken its back as a ship that has run on a rock."—*Daily Mail.*

The above descriptions seem to indicate the presence of an upward force applied suddenly to the end of the planes. Professor Petavel at the Royal Society of Arts recently pointed out the following cause of wing failure. That the suction on the top of a wing takes place at the rear of the extreme tip, the suction being always in excess of the pressure from beneath the plane. This is demonstrated more particularly in square ended wings. An eddy is set up in the corner by the air streams at the end and back edge of the wing. If the warp is applied the strain is increased.

Again Mr. Keith suggests that during a *vol plané* the machine is pulled forward by the wings. This force is opposed to the usual drift and few machines are braced against it. Sudden switching-on of the engine would reverse this pull and strain the wing sockets. Working upon this basis, it would appear that Col. Cody at the time of the accident had turned or was turning with his right wing inside, his left being stressed to its maximum degree. Accepting the above

ideas, it appears that the stresses stated by Prof. Petavel and Mr. Keith were both applied at the same moment, causing his struts to give way and allowing his planes to fold upwards. A torque would be applied, twisting main planes from their sockets owing to the forward pull and upward suction.

I submit this theory as a student and open to correction by those who have the advantage of questioning witnesses and are possessed of greater knowledge.

August 13th, Catford. CYRIL A. SMART.

Cody Memorial Squadron.

[1777] It has been decided by the Committee of the War Kite Squadrons that the most fitting and lasting memorial to Col. Cody will be to endow the 1st Squadron and name it "The Cody War Squadron."

It is hoped that the public will come forward and contribute towards this patriotic object, and the memory of this pioneer who has done so much for England in aeronautics.

It may not be generally known that Col. Cody was one of the special committee of the War Kite Squadron, also being so keen upon it he lectured in aid of the funds, and made an appeal in the Press in February last on its behalf. In that appeal he stated that he hoped he would soon be called upon to fulfil his promise to train the squadron.

No one felt it more than he did to find that England would not respond to the appeal, as he wanted to see this country stand first in aviation.

This squadron will have the most modern and up-to-date equipment and be the finest squadron in the world.

The establishment will be as follows :—

Squadron Establishment (for 1st Squadron).

Headquarters—Squadron Commandant (Major), 1 Intelligence Officer (Adjutant: Subaltern), 1 S.S.-M., 1 S.Q.-M.S., 1 Corporal (Clerk), 1 Clerk, 2 Chauffeurs, 5 Cyclist Orderlies, 1 Cook.

Kite Section—1 Captain (2nd in Command), 1 Subaltern, 1 Serjeant, 2 Corporals, 10 Men.

Telephone and Wireless Section—1 Lieutenant, 1 Serjeant, 1 Corporal, 4 Men.

Intelligence Section—1 2nd Lieutenant, 1 Serjeant, 2 Corporals, 8 Motor Cyclists. All motor cyclists, who will provide their own cycles.

The equipment will consist of a 25–30 h.p. motor lurry, on which will be installed the winch ; the engine that drives the lurry will also drive the winch.

The motor will also carry the kites and the Kite Section.

A trailer will be used to carry the camp equipments and remainder of the squadron.

The Wireless and Telephone Section :—If possible this section will be a self-contained Motor Car Field Station, which will be able to be used in high winds for use with the kites and capable of carrying about 3,000 miles, on calm days as an ordinary field station with a range of about 300 miles. Also, if funds permit (or some public-spirited citizen will give), the 1st Squadron will have a Motor Gun Section for use against aircraft.

The Squadron is almost at full strength, there only being a few vacancies for suitable men who know wireless work, and for the Kite and Motor-Cycle Intelligence Sections. All men will provide their own uniforms.

Cheques should be crossed "Cody Memorial Squadron, London County and Westminster Bank."

The hon. secretary will be pleased to give any other details that may be wished for on application. The Committee trust that some public-spirited citizens will come forward at once and endow this squadron.

On behalf of the Committee, the Cody War Squadron,

W. H. AKEHURST, Hon. Secretary.

27, Victory Road, Wimbledon, S.W.

Aerial Nomenclature.

[1778] A name is required for hydro-aeroplane. The terms waterplane and seaplane are quite unsuitable, as they fail to mention the most important part of the plane's function, namely that it flies in the air. Hydro-aeroplane does all that is required, but it is far too long.

The problem has been dealt with in other branches of science where a similar problem has been encountered, and the Greek word "amphi" has been used successfully in referring to animals which live both in water and in air, as in amphibian, amphibiology, &c. This would give us "amphi-plane," which is a reasonable word to pronounce, and before long it would no doubt be shortened into "amphi."

North Shields. C. TURNBULL.

The late S. F. Cody.

[1779] I desire to draw your attention to the two resolutions herewith in connection with the late Mr. Cody, passed at to-day's meeting of the Executive Committee of the Aerial League of the British Empire, and should feel obliged if you could give publicity to the same :—

1. Resolved, that the Executive Committee of the Aerial League of the British Empire desire to convey to Mrs. Cody their most sincere condolences on the terrible loss which she has sustained in the tragic death of her most distinguished husband, and while extending to her their fullest sympathy, the Executive Committee feel that not only has Mrs. Cody suffered an irreparable loss, but by Mr. Cody's death the nation, which he had made his own, has been deprived of the services of a most accomplished aviator.

H. T. ARBUTHNOT, Major-General, Chairman.

2. Resolved, that the gold medal of the Aerial League of the British Empire, which was awarded to Mr. Cody for his services to aviation in the year 1912, be now forwarded to Mrs. Cody, as a memento for her to keep to show the high estimation in which Mr. Cody was held by the Aerial League of the British Empire.

H. T. ARBUTHNOT, Major-General, Chairman.

I also append a list of subscriptions to the Cody Memorial Fund, which is being raised by a Joint Committee of the Aerial League and Women's Patriotic Aerial League.

H. S. MASSY, Col., for Chairman.

104, High Holborn, W.C.
August 18th, 1913.

Cody Memorial Fund.

	£	s.	d.		£	s.	d.
Commander H. W. Sharp, R.N. ...	1	0	0	S. A. Caley, Esq. ...	0	10	6
Sydney Gross, Esq. ...	5	5	0	Commander Rymer, R.N.	1	0	0
E. T. D.	10	10	0	J. W. Eugene, Esq. ...	0	5	0
Anonymous (Cambridge)	0	5	0	W. M. Steer	0	5	0
M. N. and E. C. N. ...	2	0	0	"Plane"	0	2	6
Edgar Cohen, Esq. ...	5	0	0	F. D. S.	0	5	0
Capt. D. R. L. Nicholson, R.N.	1	0	0	Ex-Soldier	0	0	6
				W. B.	0	5	0
John Holden, Esq. ...	2	2	0	Rev. Lewis Low ...	2	2	0
Mrs. Goring	1	1	0	For benefit of Cody's Family	0	2	6
Anonymous	5	5	0				
Fred. Simms, Esq. ...	2	2	0	An Englishman ...	1	0	0

Subscriptions may be sent to Col. H. S. Massy, C.B., at 25, Denison House, Vauxhall Bridge Road.

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Aeronautical Patents Published.

Applied for in 1912.

Published August 14th, 1913.

16,680. C. W. PAUL. Aeroplane with gyroscope.
16,882. E. A. DURRANT AND A. T. THOMAS. Flying machines.
17,253. P. ROBIN. Stabilising apparatus.
17,933. T. G. J. AYERS. Aerial machines.
18,821. A. T. DESGARDIN. Parachutes.
21,604. N. A. THOMPSON. Aeroplanes.
24,782. A. B. THAW. Stabilisers.

Applied for in 1913

Published August 14th, 1913.

1,315. K. ROLL. Balloon envelope materials.
4,697. M. E. CLARK. Aeroplane.
11,577. M. A. BATSON. Steering of flying machines.

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